HYGEIA

A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

Published by the American Medical Association

Sept., 1923 — *25 Cents*

PHENOL COEFFICIENT
12
U.S. HYGIENIC LAB. METHOD

A New Aid
for the Sickroom

IZAL is new only to America, however.
For more than 20 years IZAL has been a standard disinfectant of Europe and the Far East. Its unusual germicidal value (Phenol co-efficient—USHL method —12), its miscibility in any water and its relative safety have made IZAL the subject of numerous papers by such well known members of the medical profession as Sir Dyce Duckworth, Tunnicliffe, Knyvett Gordon, Colin Campbell, J. C. S. Vaughn, Sheridan Delipine, Klein, Kenwood, Hewlett, Wynter Blyth, and others.

12 Distinctive IZAL Features

1. Milk white—not black and tarry.
2. Less poisonous than carbolic acid though twelve times as strong.
3. Virtually non-caustic.
4. Non-irritating in all proper dilutions.
5. Does not stain.
6. Phenol co-efficient 12 (USHL method)—or 2 to 5 times greater than most commercial disinfectants.
7. Mixes with any water—hard, soft or salt—without separation or appreciable loss of efficiency.
8. Does not depend upon the cresols for its action.
9. Has a clean odor that is not heavy or clinging.
10. Is not lauded to the laity for treatment of disease.
11. Gallon for gallon, costs about the same or less than other products offered for similar use.
12. In actual performance it costs only a quarter or a tenth as much as most competing disinfectants.

IZAL
THE HIGH POWER
DISINFECTANT
SAFE—EFFICIENT—ECONOMICAL

IZAL
in the Sickroom

Towels, sheets and other soiled linen, before being laundered, should be soaked for one hour in a 1:300 dilution.

Sputum, urine, and other excreta should be treated with IZAL to destroy their infectivity; add IZAL to the material in the proportion of 1:100, approximately 1 teaspoonful to 1 pint of the substance, and mix thoroughly. After a quarter of an hour the material may be safely discharged down the sewer, which then should be flushed with IZAL 1:300.

After any contagious disease the ward or sickroom may be fumigated by means of steam from IZAL, 1:100 or 1:200. Walls, ceilings, rugs and hangings may be sprayed with IZAL, 1:300. The room should then be ventilated and its woodwork and furniture thoroughly scrubbed or wiped with IZAL in hot water in the latter proportion.

We want you to prove to your own satisfaction that IZAL is all of the above. Write for an interesting booklet and a generous sample

THE ABBOTT LABORATORIES

4739 Ravenswood Avenue
Chicago, Illinois

HYGEIA, a Journal of Individual and Community Health, is published monthly by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. Yearly subscription price, $3.00 in the United States and Possessions and Mexico; Canada, $3.30; Foreign, $3.50. Volume 1, Number 6. Entered as second-class matter March 21, 1923, at the postoffice at Chicago, Illinois, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1,103, Act of October 3, 1917, authorized March 21, 1923.

HYGEIA

A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

Published by the American Medical Association

VOLUME 1 SEPTEMBER, 1923 NUMBER 6

CONTENTS

PAGE

COVER SCENE—SEPTEMBER
Raymond W. Trowbridge

FRONTISPIECE—"THE KING OF THE FAMILY" 338
Charles Miller

HEALTH EDUCATION OF SCHOOL CHILDREN—THE NEW WAY 339
Jesse Feiring Williams

SUNNING AND AIRING FOR HEALTH 347
Anna Edinger

WHAT DO WE MEASURE BY THE INTELLIGENCE TEST? 349
L. L. Thurstone

MESSMATES IN THE HUMAN BODY. II 354
Asa C. Chandler

YOUR OPPORTUNITY FOR HEALTH 360
W. S. Rankin

NEIGHBORS—A STORY FOR MOTHERS 363
Morris Fishbein

THE RELATION OF AIR TO HEALTH 369
Robert F. Jones

PLANTS POISONOUS TO MAN 372
Theodore Tieken

WHEN THE DOCTOR ORDERS EGGS, GREEN VEGETABLES, AND CEREALS 379
Alice Irwin

THE CANOE TRAIL TO HEALTH 380
Earl Christmas

UNCLE SAM ON THE LOOKOUT FOR DISEASE 384
A. N. Mirzaoff

PLAIN FACTS ABOUT HEALTH AND DISEASE 386
Health News of the Month 386
The World Conference on Education 387
Underestimating the Danger of Measles 388
"Idiots Savants" 388
"Colds" in School Children 389
Suffocation Due to Gas Heaters 389
Chasing Will-o'-the Wisps 390
Can the Hair Turn Gray Overnight? 390

HEALTH NEWS AND VIEWS 392

JIMMY GERM 397
Leslie Forgrave

ABOUT GETTING SCARED 398
H. D. S.

HOW COLDS TRAVEL 399
Giulia H. Luginbuhl

BOOK REVIEWS 400

QUESTIONS AND ANSWERS 402

HEALTH REVIEWS 404

OH! VERY WELL 406

Copyright, 1923, by the American Medical Association. All rights reserved. Contributions to HYGEIA *are considered, and, if accepted, paid for. Stamps for the return of unaccepted manuscripts should be enclosed. All communications should be addressed to* HYGEIA, *535 North Dearborn Street, Chicago, Illinois.*

Health Education of School Children—The New Way

JESSE FEIRING WILLIAMS

THE health movement is new; the arguments are still hot; the programs are just being formed. Various sporadic efforts at control of health conditions in the schools have been made in the past, medical inspection known chiefly as "inspection" has been tried, and some teaching of anatomy and physiology has gone on under the guise of hygiene. The great interest in health that makes possible health education bureaus in state departments of education, that produces numerous national organizations working for health programs, that gives copy themes to advertising agencies, that leads the Commission for the Study of Secondary Education to list health as one of seven objectives for secondary education—this interest represents a new point of view in education, a new emphasis in life.

The emphasis on the physical aspects of health is not enough. The teacher of health education must recite as one of the first principles: mind and body are one. Consequently the program of health education that only puts school children through adult-conceived exercises fails utterly. The racially old activities that are full of meaning and content for the individual must be substituted for the present routine in many schools. This is the opinion of Dr. Williams of Teachers College, Columbia University. This paper was read last spring during school men's week at the University of Pennsylvania.

In carrying forward a program of health education, the school becomes organized to do for the child what was formerly done in the home. In this field the school takes over parental responsibilities in precisely the same way that it has in the field of household and industrial arts. This has come about because of two closely related views: the first, that the health of the child is as important as its mental capacity for school purposes, and far more modifiable; and the second, as yet without the sanction accorded the first, but gaining in favor, that fitness for education and protection of health are as essential as compulsory education. The theory that society is benefited by an enlightened citizenry carries with it the argument for healthy, vigorous citizens.

There is so much said about the value of health and the harmfulness of disease that it is not necessary here to discuss these features. In fact, it is the ideas that grow out of these appreciations that need clarifying and that suggest several topics that seem to me to be significant. Wherever these ideas are mistaken, it is important to combat them not only for the sake of the health movement, but indeed for education itself.

Fallacy of Viewing the Individual as Physical Only

The first idea that is often found at work in the health movement is that health is primarily a physical matter. This idea is predominant in the emphasis on brushing one's teeth, in masticating one's food, and in exercising one's muscles. Contrariwise, health is not only physical but also mental and social. One's teeth are more dependent on what one's mother eats during pregnancy than on teeth-cleaning habits; one's digestion is related as much or more to mental attitudes than it is to mastication; and exercise that neglects the satisfactions and annoyances in the nervous system is making false claims for wholesomeness.

The consciousness of the social factors in individual health are not always appreciated, but certainly the increasing sense of social consciousness is helping to make clear the relations that are being determined. When the laboratory man shows us that teeth are good or bad according to the dental germ laid down in the embryo and its subsequent nourishment, we recognize the outlines of our problem in dental hygiene. They shape our program inevitably toward social measures.

The emphasis on the physical aspects of health is not enough. The dualism of mind and body that has so disastrously influenced education meets its conqueror in the health field even as it has in modern psychology. The teacher of health education must recite as one of the first principles: mind and body are one. For purposes other than those of the dissecting room it is a mistake to view the individual only from the physical standpoint.

Hence one ought to be disturbed whenever functional, significant, and vital instincts and

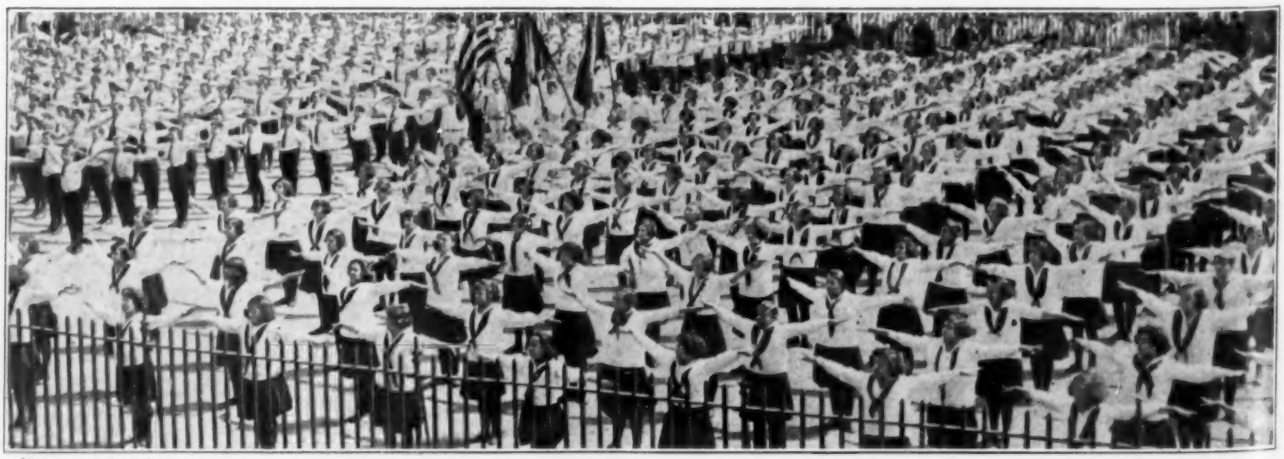
impulses are repressed for a meaningless, static, and sterile activity based only on physical grounds. Trunk sideward bending as an exercise may squeeze the liver, increase peristalsis, and accelerate portal circulation, but if the mind of the individual is filled with annoyances and is denied satisfactions in the activity, surely we have no basis to call such exercise hygienic. The use of the term hygienic as applied to human activities must be sanctioned by its applicability to the responses of the entire organism. It is as unjustified to omit healthful responses of the nervous system from our criteria as it would be to omit consideration of the circulatory or respiratory systems.

Moreover, neglect of the mental is so common in dealing with disease and deformity that the school needs to be aware particularly of this tendency in the physical examination. Medical inspection—too frequently just medical inspection, leading to no practical end—has in many places succumbed to the efficiency ideal with such success that children are put through a health examination in very much the same way that automobiles are assembled. Routine, system, efficiency—these guides make it possible for an inadequately staffed department to examine once every child of a school system, and to note evident defects and deformities. But such method gives no opportunity to enlist the cooperation of the child, to tap those great reservoirs of energy that the normal boy and girl possess toward accomplishment. To train and to become fit for worthy and significant objectives known and in part set up by them is a quality so characteristic of youth that its neglect in teaching constitutes always a striking failure to realize possibilities.

It is always a mistake educationally and medically to view a human being as an organization of tissues. In health supervision every effort should be directed at enlisting the cooperation of the home. The parents should be present at the examinations of their children. I recognize that this complicates and slows down the examination, and some will say complicates and slows down needlessly. When it is recognized, however, that practically 90 per cent. of what we wish to accomplish in health habits takes place in the home, that parental cooperation lies at the very basis of effective health supervision, the validity of this view will be evident. Here as elsewhere in education we have to decide between machine-like methods with "maximum production" and human, personal contacts with persuasion, interest, sympathy, and understanding at work.

This emphasis that I would give leads to new methods in health teaching, and new methods in health supervision. In the latter field of health education there will be developed an increasingly simpler technic and a bigger staff. It is not too much to expect that the teacher herself will become more and more proficient in examining for health conditions. In the elementary school she is in the most strategic position, not only to recognize variations from normal, but also to use such information in all her teaching. The medical office should be available for the more specialized examinations, but it is possible to train the nonmedical person to recognize many of the items usually examined for. Certainly, if we have to wait for a more adequate examination until sufficient physicians are employed, the suggestion to use nurses, physical education teachers, and even the classroom teachers should be carefully considered.

It is related at times for our amusement that one department of the federal government looks after the brown bear in our national parks and another department looks after the black bear. We should be still more amused if we learned that one department were concerned with the head, another with the feet,



Pacific and Atlantic

The school by its sterile program of calisthenics may delude itself about "building up health." . . . Physical education should never be satisfied with technic.

and another with the tail of the same bear. The coming of health education into the school system should help to break up the abnormal divisions in child care. Frequently, as viewed administratively, the school board is responsible for the child's mind, the board of health for the child's communicable disease, and the board of park commissioners for the child's play. These unusual social organizations result in part from the fallacy of the view that we have been discussing. The physical child, the mental child, the social child are only aspects of the one personality whose identity *in toto* must be known if we are to teach him anything or are to help him learn how to adjust to his world.

Health as a Quality of Life

Another view that leads to undesirable practices holds health to be a quantitative affair. In health education it takes the form of providing what are known as "health exercises." This view leads teachers to expect to build up the health of boys and girls in school, supposing that in some way this supply of health will last during life. So illogical is this view that special exercises are used for health ends and hence are called hygienic. Indeed, so artificial has health culture become at times that breathing exercises and massage are advocated as substitutes for a more rational activity.

Contrariwise, health flows from life as a by-product of correct living. Health is much more related to qualitative values than to quantitative values, just as happiness is. Health and happiness are not built up; they come from activities that produce them as by-products. The important consideration in this connection is to teach boys and girls to live correctly, to establish wholesome habits, and to form socially useful attitudes.

No method of building health and strength can be successful permanently unless it enlists the interests of boys and girls. It must be grounded on the racial instincts that have impelled young people since time immemorial. The school by its sterile program of calisthenics may delude itself about "building up health," but boys and girls come to college seeking to be excused from the requirement in physical education. I count it as a tragedy if the school by omission or commission of acts leads boys and girls to dislike physical activity, since vigorous physical activity lies at the very basis of health and vigor. But it lies there in no static state; it is intensely dynamic, and the school conscious of the problem will be seeking constantly to develop among all boys and all girls a skill in and a love for some form of physical activity that they will carry with them throughout life.

The provisions for the development of vigor and vitality in school children should be taken out of the hospital class. At present much of the health work in the school, either as health education in a narrow sense or including physical education, is thought of as an antidote for unhealthful practices in the education of children. Certain types of physical education are offered in school today in order to prevent a stoop that results from study, or a visceroptosis from weak abdominal muscles; too frequently the whole scheme is remedial.

While it is true that there are many defects among children, it is equally true that the program for health and physical education should be concerned with positive values. Physical education should be conducted to set a standard of living that is something more than correction of abnormality—a standard of living above the average, the mediocre, the commonplace. Physical education should never be satisfied with technic. There must be in its program something of the healthier virtues of courage, endurance, strength, and the natural attributes of play, such as imagination, joyousness, and pride. The juggling of the ring, the acrobatics of the stage, the

Underwood

These youngsters need no encouragement to tug for the sake of health and muscles. Health and happiness are not built up; they come from activities that produce them as by-products.

uniformity of calisthenic drill, the cheap accomplishment anywhere must not be the standard.

Inspiration for finer manhood and womanhood in all expressions of life cannot come from formal calisthenics and gymnastics, a mixture of dry hygiene and tooth brush sanitation. The work must have imagination, spirit, ideals. Play and games must not be emasculated, but must be filled with the spirit of vigor, of victory, of power, of clean, fair, noble endeavor. The softness that tends to creep into sports under the petticoats of amateurism, the regimentation and exclusiveness that come so often with classification must not be allowed. The athletic aristocracy of the school will have no place in the scheme of such physical education, but an equitable opportunity of activity for all will be the guide.

Hence in thinking of health as primarily a qualitative matter one must be concerned with making that quality finer, richer, and more useful. Thus, physical education activities will be thought of as more a matter of the nervous system than of the muscles. It is this thought that President Hall has in mind when he writes:

> Physical education is for the sake of mental and moral culture and not an end in itself. It is to make the intellect, feelings, and will more vigorous, sane, supple, and resourceful.

Spinoza made the remark that we do not know what body is capable of. Probably we never shall know until we can read aright Browning's lines in "Rabbi Ben Ezra":

> Thy body at its best,
> How far can it project thy soul on its lone way,

or better still, until we go a step with Aristotle and declare that we shall never know till body finds its true function as instrument of fully developed soul.

> Materialism, according to MacCunn, consists not in frankest recognition of matter, but in the assignment to it of a spurious supremacy or independence. There can be no materialism in utmost emphasis upon physical education so long as "Body for the sake of Soul" is as it was with Plato, the presiding principle of educational action.

It is gradually being borne in upon educators that ten minutes of calisthenics in the classroom do not meet the needs of children either for physical development alone, or indeed for the more intricate business of training in character. It is increasingly recognized that elementary children need from four to five hours a day of big-muscle activities, that the modern home in the city fails to provide opportunity for this need, and the responsibility again comes back to the school.

This newer view in physical education is meeting opposition of the traditional kind, the well-enough-alone kind. There are those who hold that physical education is chiefly concerned with formal exercises, but supported in part by fallacious arguments for discipline and numerous other values such as coordination, accuracy, and control. There is a great gulf between the foundations of the two views.

Underwood

There must be in its program [physical educatio n] something of the healthier virtues of courage, endurance, strength, and the natural attributes of play, such as imagination, joyousness, and pride.

Underwood

It is increasingly recognized that elementary children need from four to five hours a day of big-muscle activities, that the modern home in the city fails to provide opportunity for this need, and the responsibility again comes back to the school.

It separates, on the one side, artificial, unscientific, uninteresting, adult-conceived exercises and, on the other, physical activity that is based upon children's physical, mental and social characteristics, the needs of the child, and human society. The former is devised by the adult as being good for the child without consideration of the child's instincts, interests, or desires; the latter represents an opportunity for the child to act in racially old activities, natural in form, scientific in character, and full of meaning and content for the individual.

It is to be hoped therefore that principals and superintendents will demand more and more from our teachers of physical education. Just recently I have had a letter from a principal in a school in Pennsylvania saying, "Have you a man to recommend who has enough brains to organize in my school something more than formal gymnastics?" I was reminded when I read his letter of a situation in one of our leading cities of the south. We were engaged in making a school survey and in checking up on the instruction in hygiene, the medical inspection, and the physical education. I found that a very formal system of calisthenic exercises was the foundation of the program throughout the city. It was organized so that every fourth grade in every school, for example, performed the same exercises. Thus, on the tenth of November every fourth grade would be doing the same lesson. This organization was beautifully carried out. It was even extended to the school for deficient children, and, as one might expect, the mentally defective performed the exercises as well as the normal children. The defectives were unable to play games readily, however, nor could they dance and engage in self-expressive and self-testing activities, but they could do 1-2-3-4 calisthenics as easily as normal children.

Modern physical education is as interested in health as any of the protagonists of the antiquated and foreign systems. It sees health as related to the whole of life, closely bound up with habituations, skills, attitudes, and appreciations. It sees health as abundant life, and not as a pale and pallid product of corrected deformities.

If the school accepts modern physical education, it must be prepared for a richer program of activities, it must provide more play spaces, better schedules, more teachers and better trained teachers and supervisors of physical education. The sole justification for asking children to go through exercises in the classroom as if they were wooden Indians lies in the meagerness of the organization required for such sterile activity. But the guide in outlining a program for children, the goal to shoot at in training boys and girls, should be shaped first by the physical, mental, and social characteristics of boys and girls and second by the needs of human society. Any acceptance of a physical education that requires no apparatus, no play spaces, no special teachers, no intelligence, is an acceptance of watered stock, bankrupt methods, and no dividends.

Health Is Never an Academic Subject

The interest in health education today provokes another view that has arisen in response to the demands for content in school subjects. Hence, the study of health has been considered a content subject; it has been concerned with offering information. Not infrequently one finds children with serious health defects reciting in poorly ventilated and badly lighted rooms such matter as "the number of bones in the body, the character of the gastric juice, the function of the spleen, the cause of peristalsis."

Contrariwise, it is suggested that what the child knows about bodily processes and health is not very important, but what the child is and practices are extremely significant. A health survey of the child is the first step therefore in any scheme of health education. What is the evidence?

International

- More than 1 per cent. of pupils have organic heart lesions.
- From 5 to 10 per cent. of pupils have or have had tuberculosis.
- From 20 to 30 per cent. of pupils in most schools are malnourished.
- From 25 to 35 per cent. of pupils have defective vision.
- From 5 to 8 per cent. of pupils have defective hearing.
- From 15 to 35 per cent. of pupils have adenoids, diseased tonsils, or other glandular defects injurious to health.
- From 50 to 98 per cent. of pupils have defective teeth.

If we pass from what the child is to what the adult is, is it not significant that from 30 to 40 per cent. of the young men of the nation between twenty-one and thirty-one were unfit for war? Were they any less fit for the indispensable and essential needs of civilian life and peace? There are those who believe that a census of our women would show a more serious condition.

From other sources, it is revealed that adults are not in any real measure making the best of the health knowledge that is available, and Fisher's report on national vitality set 42 per cent. as the mark of reasonably preventable sickness and death.

Does this emphasis on the application of hygienic knowledge mean that information and health knowledge are to have no place in the scheme of health education? Not at all! But it does mean that the content of courses in hygiene is to be critically selected and closely correlated with the best and most useful knowledge available today. This knowledge will come naturally from the science courses, and they are to be judged by the extent of usefulness of their contribution. And to the degree that the school is a cooperative endeavor for the helping of boys and girls and not an institution of special subjects in watertight compartments, the teaching of science in the school will have direct bearing upon important problems of health. It may be

commonplace to note that science has been taught for many years in American schools, but it is a startling contemplation that science has never been sold to the American public.

Certainly in the health field science should be able to make clear to pupils the fundamental laws relating to biologic, chemical, and physical processes that bear upon problems of living. Is there any question that science has little sanction in the health field when we recall the beliefs in the magical and mysterious in regard to health and disease. Credulity uncorrected by science is making customers for the great American fraud that only the schools can overcome. What is science in the schools doing about it? How many million bottles of "Tanlac" and "Nuxated Iron" were sold last year? Just now people are seeking health in "Vitamon" tablets, while the staple kidney, tuberculosis, and cancer cures are always with us. What is science in the schools doing about it in relation to its own projects or to health education?

To what extent is science being taught in the school in such fashion that it will help people to seek beauty, health, and power in rational ways rather than by the "Beauty Helps," "Health Hints," and "Doctor's Advice" columns of the daily newspaper? To what extent is science going to help solve the problems for that ever-increasing group of the dissatisfied, the pseudoinflicted, the no-one-understands-me people? Isn't it quite as important to teach people to face facts, to follow truth, to acknowledge nature's physiologic laws as it is to reveal the law of partial pressure of gases or speculate upon the probability of Einstein's theory of relativity?

Surely, more than twelve persons in the world can understand science in relation to health! To what extent shall the school consider itself responsible for irrational proposals for health? When Abrams with his electronic diagnosis and Coué with his autosuggestion make their public appeal, what has science as taught in the schools to say? When antivivisectionists and antivaccinationists beat the tom-toms, do you really believe that our people know science? What about Christian Science, New Thought, and the League for the Larger Life? Is it sufficient to say that we have no right to expect scientific attitudes in these instances since people quite generally believe what they like to believe, consider as untrue that which they wish to be so, and by a process of glorified suggestion shut their eyes to truth whenever it pleases their fancy so to do?

Keystone

Health as a Means and Not an End

The trouble with these groups who follow the teachings of faddists and special cults is that health is thought of as freedom from disease, as an end. This view is quite commonly expressed, and in these days of great interest in the health movement it constitutes a real danger. It may be stated categorically that health should never be sought as an end, except perhaps by the individual sick in bed. To be conscious of bodily processes, to think too much about one's self is not only undesirable socially, but also is distinctly unwhole-

some for the individual. No person may with impunity be too greatly concerned about his health; for the moment he does, he runs the risk of losing it.

The health motive must be made secondary to objective interests and achievements. As educators it is important that we sense this relationship and guide the program of teaching toward goals of service rather than toward those of personal achievement. Health is to be viewed therefore only as a means for the accomplishment of worthwhile things for the world. "Health for health's sake" is not an acceptable slogan. The poseur and the dilettante in health are no more acceptable than the poseur and dilettante in art. That splendid specimen of man power, that wonderful organization of vitality in the healthy woman—are such sufficient unto themselves? Surely no educational theory would seek to justify the development of mental power for its own sake; likewise it will find impossible the plea of those who seek health for health's sake. Rather will it defend the view that health is only of value, only of significance as it is used in socially desirable ways. The social consciousness of our day asks that we act as trustees of life, enriching it where we may, but always conserving it for worthy ends, ready to spend it all if the demand be great enough.

And thus in any consideration of health education we come back to the beginning, to the place of definitions, to aims, and to purposes. What is the purpose of health? I have defined it as "the quality of life that renders the individual fit to live most and to serve best." The meaning of "to live most and to serve best" cannot be expressed readily. Such things can rarely be defined acceptably in words. To try to do so would be like an attempt to define the term "a good life." Phrases of this kind are to be defined best in terms of personality. The person is the definition of the term whenever the term includes the ideals and aspirations of the human heart. For some "to live most and to serve best" will mean one thing, for others it will mean something else. The world may well hope that more and more men will give to it a human and social meaning, a meaning founded in truth and full of good will to all.

Finally, this broadening of the concept of health as more than freedom from disease or as sought end is justified by life—by the best of life. The immortal Roosevelt with the out-of-doors upon him, the beloved Burroughs singing his songs to accompaniment of nature's harmonies, have pointed out the way. Leaders, teachers, and workers in many places are showing what health means in terms of service and abundant life. Health as freedom from disease is a standard of mediocrity. Health as a quality of life is a standard of inspiration and increasing achievement. The hope may be expressed that the great interest in health education today shall be directed toward not only scientifically acceptable goals, but also goals that shall be worthy.

ADVENT OF RUBBER HOT-WATER BOTTLES

"The record of novelties, inventions, and discoveries opens modestly in 1875 with the mention of hot-water bottles in bed as a 'new idea.' They have long since ousted the warming-pan, which until recently maintained a precarious existence in old-fashioned inns, and is now merely a picturesque antique. Lovers of (Thackeray's) 'The Rose and the Ring' will remember its use as a weapon, and romantics will deplore its abandonment for there is no romance in a hot-water bottle." [C. L. Graves, "Mr. Punch's History of Modern England."] In Scotland the earthenware hot-water bottle was in common use in the eighteenth century, and probably earlier, much to the mystification of the untravelled English, and even of the "intelligent foreigner." It was called a "pig," when arose the myth that in accordance with their adage "The clartier (dirtier) the cosier." The Scotch for comfort and company took to bed with them the "gintleman" who in Ireland used to "pay the rint."

—The Pharmaceutical Journal and Pharmacist.

Sunning and Airing for Health

ANNA EDINGER

"This short account of an interesting movement has just been sent me," says Dr. Alice Hamilton of Harvard University Medical School, "by the widow of Professor L. Edinger of the University of Frankfurt. I visited the 'Luftbäder' with Frau Edinger in the summer of 1919, going out to the parks on the outskirts of the city where the youngsters were spending the day in the glorious freedom of bathing tights. That was while the food blockade was practically still in force and the children I saw were frightfully emaciated, the boys especially, and there were many cases of rickets. Although to me their condition seemed pitiable I was made to see by the careful records kept of each one that they had improved greatly during their treatment in the air bath. It was really an experiment on children like the experiments in America on rats, for there was at the time not one drop of cod liver oil in Frankfurt and little milk and no butter; the children were living on coarse bread and a soup made of coarse meal, chopped greens, and a few drops of margarine. The only thing they could be given for rickets was sunshine on the skin, and, as American researches showed to be true of rats, this remedy alone brought about distinct improvement in the rachitic children. I have often wondered since why we Americans do not use our much more abundant sunlight for its curative properties, as the Swiss and Germans do."

THE American system of supervised playgrounds is a wonderful instance of pioneer work in child welfare, but the usefulness of these playgrounds might be greatly enhanced by the introduction of the sun and air baths that have given remarkable results in Germany and in Switzerland among children of school age and less.

For many decades it has been common knowledge that severe cases of tuberculosis of the bones and glands that do not yield to any ordinary treatment will react favorably if the patients are taken to high altitudes in the Swiss mountains and exposed to the rays of the sun. But it is not so well known that such cures may be effected also, though less rapidly, at ordinary altitudes, and that sun and air baths act both as preventive and as curative treatment for rickets, as well as for certain forms of tuberculosis. Moreover, the power of resistance to all types of disease is vastly increased by this outdoor life.

Fifteen years ago in Frankfurt-am-Main the air bath treatment was introduced in connection with the playground movement. During the summer holidays children of school age and children still too young to go to school spend a number of hours daily in two large playgrounds; there is one for the boys and one for the girls. They gradually discard their clothing for bathing suits—tights for the younger boys and girls. On cool days and the first days of the vacation they wear the bathing suits only a short time, but soon they keep them on for the entire three-hour period. The body is also exposed only gradually in order to avoid severe sunburn; the parks are shady enough to make this easy. The children play about or lie in the grass; they join in games and dances, or spend the time resting, according to the physicians' orders. Of course, the treatment is not like that in a sanatorium, for after a week's watchful care, during which the children become acclimatized, most of them are left to their own devices. Those

Fifteen years ago in Frankfurt-am-Main the air bath treatment was introduced . . . The city's children spend a number of hours daily in two large playgrounds. The children gradually discard their clothing for bathing suits—tights for the younger boys and girls.

The children play about or lie in the grass; they join in games or dances, or spend the time resting, according to the physicians' orders.

who have heart trouble, rheumatism, eye trouble, and weakness of the bladder receive particular attention, so that they shall not become chilled or be exposed too long to the rays of the sun.

This sun and air bath movement has already spread far. In all the larger cities of Germany institutions for sun and air cures have been established, for adults as well as for children. In the parks, in the grounds of public institutions, in the kindergartens, and in like places, the children play and exercise and rest in bathing suits. Since the number of children with rickets has increased so greatly during the last nine years, Frankfurt has provided facilities for the sun and air cure for babies and children too small to be taken out to the parks; these places are to be found in all districts of the city.

The results of the open air treatment of the rachitic children seem almost marvelous. Little things who early in the season were carried in the arms of their mothers or older sisters and who lay passive, dull, and uninterested, are running around merrily by autumn and their bone deformities are decidedly improved. Children who had had colds and coughs each winter are remarkably free during the first winter following their treatment. They have become hardened; the skin has become acclimatized to changing temperatures and is no longer sensitive to chilling. And proudly many of them can expand their chests, an effect proved by actual measurement—and chest expansion is, of course, important in the prevention of tuberculosis. The muscles, freed from the restriction of clothing, have a chance to develop so that even after four weeks' treatment the doctors note an increased expansion of from two to four centimeters, that is, from one to two inches. The effect on the children's temperaments is also most happy. Children who at their first visits are listless and not interested in anything become joyous and vivacious in a short time. All of them are able better to endure the evils of crowded city life.

American research was the first to prove that nearly every one during the period of growth becomes infected with tuberculosis, but that only a minority of the population actually develop the disease, because the protective powers of the body are sufficient to combat the germs of tuberculosis more or less successfully. There is every reason to believe that these protective powers of the body are increased by the sun and air treatment. On this theory the physicians of Lausanne, aided by the school teachers, have urged the parents of that city to allow their children to spend the summer vacation on the lake shore dressed in bathing suits.

It would seem that this form of treatment might easily be introduced into the admirably supervised playgrounds of America, with their bathing pools and other facilities. Surely American physicians would encourage and direct such work, as have the Swiss and German physicians. There is no difficulty in persuading the children to discard their clothing; indeed it is hard to get them to put it back on, so delightful is the feeling of freedom.

Since the number of children with rickets has increased so greatly during the last nine years, Frankfurt has provided facilities for the sun and air cure for babies and children too small to be taken out to the parks.

It is, of course, necessary to protect them from being chilled, and the order always is to dress as soon as one feels chilly.

The sun and air bath treatment makes our children more robust, more capable of resisting disease, more active, more joyous and happy. It is the influence on the health of growing children that leads us to hope that the treatment will be adopted in America.

[NOTE: The News and Views sections of this number and of previous numbers of HYGEIA show that the sun and air treatment is being adopted in countries other than Germany, but mostly for sick children, and not enough for the well.—EDITOR.]

What Do We Measure by the Intelligence Test?

L. L. THURSTONE

INTELLIGENCE tests have recently been the object of much discussion and dispute and it is clear that public interest in them springs from many different sources. Parents who have a backward child in school find that it is placed in a special class for retarded children on the basis of an intelligence test, and they are sensitive about such segregation. Statesmen are concerned about the low mentality of the immigrants, and they are asking whether a sound method can be found in psychologic tests for determining the qualifications of admission to the country. The sociologists are alarmed about the fact that the mentally lower strata of the population breed faster than the mentally superior. Can psychologic tests be of use in solving their problem? The United States government is inquiring whether the principle of appointment to office on the basis of merit can be made more effective by psychologic tests. The biologists are giving serious thought to the problem of heredity with special regard to mental inheritance as measured by psychologic tests. And the employer is trying the tests to determine their usefulness as an employment device. Interest is by no means confined to those who give the tests. The persons who actually take them are also interested. The man who makes a high mark believes that they are "fine," while the man who makes a low mark declares that they are all "bunk."

Why do so many of the questions in an intelligence test seem far fetched? "It is in the very nature of the intelligence test that its questions must be unusual; if they were familiar they would be tests of information only," answers Mr. Thurstone, who has opportunity to apply them in the Bureau of Public Personnel Administration, Washington. "The intelligence test deals mostly with facts that are generally included in what we know as common sense." That is why they can be useful to the prospective employer.

During the last seven years I have devoted most of my time to the experimental and scientific study of psychologic tests. In the course of these experiments I have devised more than fifty different forms, many of which proved to be useless, while several indicated some value. For one who is experimenting in this field it is in one sense gratifying to note that interest in such work has suddenly become general, but it is also disturbing to note that many serious misunderstandings have arisen regarding the nature of the tests, their purposes, their possibilities, and their obvious limitations.

One of the attitudes that I meet frequently is that psychologic examinations are entirely worthless. Now, I should be willing to admit that some of the experimental tests are worthless, but I should not be willing to admit that they are all worthless. Those who take the entirely negative attitude with regard to mental tests are unwilling to look at all the facts in an experiment. Some persons are oversold on psychologic tests. A person who has been oversold on the new test methods swears by a single test mark as though it were necessarily final and absolute. I am confident that the methods of psychologic examination constitute a great addition to the tools by which we can size up people, but it is advisable to interpret a psychologic test, or an intelligence test, as a useful supplement to other information about the candidate, such as his formal education, his range of information, his experience, and his personality. The people whom I prefer to work with are openminded and willing to learn, willing to participate in fair experiments, and willing to look at all the evidence. Such an impartial attitude limits failure to where it belongs, and acknowledges success where it is found.

DETERMINING THE VALUE OF A TEST

In determining the value of a test it is necessary, of course, to state as clearly as possible

Very young children can be tested for intelligence. A bright child quickly fits the round pegs into the round holes and the square pegs into the square holes of the Wallin peg board. This is called a performance test, that is, it does not demand the power to speak, hear, or even see; only touch—the recognition of form—is necessary.

for what the test is being carried out. The procedure is briefly as follows: Suppose that an employer wants to use a test for the selection of office clerks. In this case the ability to do office work is being tested. An experimental employment test is devised and given to a fairly representative group of clerks, including the good ones and the poor ones. The test papers are marked in accordance with some uniform plan. We have then two sets of facts, the test marks and the estimates of the abilities of the clerks. The estimates should preferably be in some definite form. The names of the clerks might be arranged in a definite order, from the best to the poorest, in the judgment of the man who wants the test; or some numerical rating might be assigned to each clerk on the basis of his attainments and the performance of his work. There is, of course, considerable variability in such ratings, but they may be useful if the rating officer compiles them carefully, and if all the persons tested are rated by the same judges.

We are then ready to determine whether the test is a good one. If the test agrees well with the judgment of those who know the clerks, the test is satisfactory. But if the test marks do not agree with the judgment of the superior officers who are familiar with the work of the several clerks, the test is said to be a poor one for this particular judge, or for this particular kind of work. The set of ratings or estimates against which the test marks are checked is called the criterion. A mental test must be shown to agree with some criterion before it can be pronounced to be a good test. A mental test is never simply good; it must be good for some definite thing, some stated mental characteristic, such as the ability to do clerical work, the ability to sell clothes, or the ability to tell funny stories. This is the fundamental logic on which all mental test work is based.

If an experimental test has been through the procedure that I have outlined briefly, and if it comes out in fairly good agreement with the criterion, it is ready to be used for practical purposes. Note that the mental test usually takes only a few minutes or an hour to give, whereas it takes several days or weeks and much spoiled work to discover the incompetent clerk in an office. The practical purpose of the mental test is to save the employee from the disagreeable experience of being fired and to save the employer from the disagreeable experience of having a lot of work spoiled before discovering the shortcomings of the new clerk. A test should never be used as a test of anything until it has been shown by experiment to be really a test of that thing. In this sense the logic of mental tests is no different from the logic of tests in other fields, in chemistry or engineering, or in diagnostic measures in medicine. The purpose of any test is to predict what will happen, and to enable us to take the proper course.

Let me describe several of the most common misunderstandings regarding psychologic tests. Three terms that are often used in the general field are intelligence tests, psychologic tests, and the objective methods of examination. These represent three different things.

Tests of Intelligence Instead of Information

An intelligence test is intended to measure, more or less roughly only, the degree of mentality or intelligence of the candidate. Psychologists have not yet agreed on any theoretic definition of intelligence, but they mean just what we ordinarily mean by intelligence, brightness, smartness, "brains," being keen and alert as contrasted with the opposites in dullness, stupidity, inability to catch on and understand, inability to learn rapidly, inability to face novel situations with resourcefulness. There is one fundamental difference between an intelligence test and a school examination that must be understood in order that the intelligence tests may be used properly. The school examination is intended to measure how much we know, how much we have learned from a course of instruction or from experience. The intelligence test is intended to measure, not how much we have already learned, but how good our minds are, irrespective of our education.

In practice it is impossible to separate these two factors entirely, but the intelligence test

emphasizes native mental endowment, the ability to do mental work right now in the examination, quickly and accurately. The intelligence test assumes some education, such as the ability to read and write and the knowledge of simple numbers, but this is assumed to be general for all who take the test. Intelligence is supposedly measured by the quickness and accuracy with which the candidates can use the facts that they all know.

I can illustrate the difference by an example. Suppose that you give a few simple problems in arithmetic to a child who is studying arithmetic in school. The problems would be partly a test of education because the knowledge of arithmetic is part of the present school work of that child. It would be only partly a test of intelligence. If you give the same problems in arithmetic to a class of fifty high school seniors who supposedly have all mastered the rudiments of arithmetic, you would be justified in saying that the differences are partly due to differences in the intelligence of the students.

Of course, we must not lose sight of the fact that, other things being equal, the intelligent person learns more readily than the mentally less gifted person. Consequently education serves as a rough guide to intelligence. As a general rule those who have an education are brighter than those who have dropped out of school, but we must recognize the distinction between the uneducated intelligent mind and the educated intelligent mind. The intelligence test is an effort to do justice to the alert mind, to let it show its qualities even though it has not enjoyed the opportunities of formal schooling.

Why Tests of Intelligence May Seem Foolish

One of the frequent objections that I hear about intelligence tests is that they are foolish. The questions are considered so silly that they cannot possibly be of any practical use. Why not ask ordinary, regular questions? It must be remembered that if we ask ordinary questions about facts, questions about geography, for example, our test becomes immediately informational or educational, and that is the very thing that we must get away from in order to test intelligence rather than schooling, "brains" rather than information. The only way in which intelligence can be measured directly is by a list of problems that are equally new to all who take the test, and that they all have an equal chance to solve, provided they are equally bright. It is in the very nature of the intelligence test that its questions must be unusual. If they were familiar they would be tests of information only.

Tests for Mental Traits

Psychologists have worked with tests for mental traits other than intelligence, such as the ability to visualize, the ability to perceive small differences in color or sound, the ability to repeat complicated rhythms, the ability to memorize, and so on. When we talk about all of these tests for mental traits collectively we refer to them as psychologic tests. The intelligence test is one of the many different varieties of psychologic tests. Thus the test for color blindness is a psychologic test, but it is not an intelligence test.

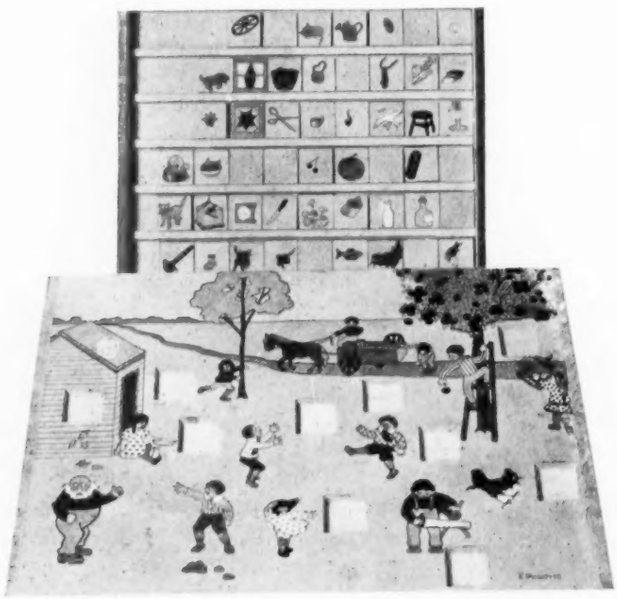
Objective Methods of Examination

The objective method of conducting examinations does not necessarily have anything psychologic about it, although the psychologists happen to be the ones who have developed the method extensively. By the objective method of examination is meant the arrangement of the questions and the marking of the answers in such a way that the personal opinion of the examiner is ruled out as far as possible. If an examination has been prepared according to the principles of objective procedure, the acceptable answers are tabulated before the examination is given. The questions are so worded that the answer is short and definite. The written answer either agrees with the specified answer or it does not. Sometimes a clerk can mark the papers without knowing anything at all about the subject of the examination. The objective method obviates any possible difference of opinion among examiners as to what mark should be given to an examination paper. The procedure is made objective instead of subjective. The objective methods are applicable to both oral and written examinations.

The child's ability to distinguish between the forms of the various shaped blocks and the alacrity with which it places them in the proper spaces in such a test as this, with the Seguin-Sylvester form board, marks its intelligence. This is also a performance test.

Mental Age

One of the most common misunderstandings about intelligence tests concerns the idea expressed by the term mental age. We hear statements to the effect that the general population of the United States is only fourteen years old mentally, and that this is a very terrible fact. The psychologists are largely to blame, I believe, for this absurd misinterpretation of their tests. Intelligence tests were first devised to separate bright, average, and dull children. In doing that by means of intelligence tests differences were recognized between the chronologic age of the child, his mental age or mental development, and his physiologic age or physical development. A child eight years old might be found to be as bright as the average ten year old child, but



The original of this Healy pictorial completion test is a brightly colored picture representing an outdoor scene. From the forty "cut outs" must be chosen ten to complete the meaning of the various activities. The intelligence of the child is determined in this test by speed and logical mental association.

(Courtesy of C. H. Stoelting Company.)

physically only as well developed as the average six year old child. This is how we came to say that such a child, actually eight years old, had a mental age of ten, and a physiologic age of six. It was a useful idea in dealing with children. Psychologists, including many well-known men, acquired the habit of talking about mental age as soon as they discussed intelligence tests.

Then came the army intelligence test. Some psychologists insisted that an intelligence test was worthless unless it gave us some kind of mental age. The truth is that the mental-age idea works well with children, but it does not work in dealing with adults. Our innate intelligence does not grow with our age after we have passed the development of childhood. Furthermore, the tests by which mental age is measured do not go farther than fifteen years, consequently no matter how bright we are we cannot score higher than fifteen years mentally on any of the tests for children. The tests stop at fifteen years on the mental age scale.

Error in Testing Mental Age Beyond Childhood

If we insist on figuring a mental age for the draft army intelligence test, we must first give the army intelligence test to a group of children, and that has been done. Then we find the marks made by children of various ages, and of course the very young children make lower marks on the average than the older children. Then we fix a sort of equivalent scale of mental years to the marks of the intelligence test. By using such an equivalent mental age scale in the interpretation of the army intelligence test records, we can affix mental age to the draft army records.

But now let us see what we have done. We have equated the army intelligence test to the Binet tests which stop at fifteen mental years. If you are older than fifteen years you cannot be assigned any higher age than fifteen, because the mental age scale stops there. If you are not so bright as the average fifteen-year old child you will of course be given a mental age less than fifteen. If we average all these mental ages with some ages assigned less than fifteen—but with none more than fifteen—it is clear that the average will come out less than fifteen. And then we make the absurd conclusion that the average mental age of the population is fourteen years! Is it not strange that so much noise and stir can be made on the basis of a statistical mistake that is so obvious?

Learning to Use Our Minds, the Measure of Mental Development

Mental development beyond the years of early adolescence consists in learning to use our minds, learning methods and tricks of solving problems, acquiring information on which our minds can work to advantage, gaining the emotional and volitional stability that marks the difference between the dependable adult and the unpredictable young adolescent. The difference between the man of forty and the boy of fifteen is not so much in the actual difference in intelligence as measured by the mental age scale, as it is in the accumulated experience with which their minds can work.

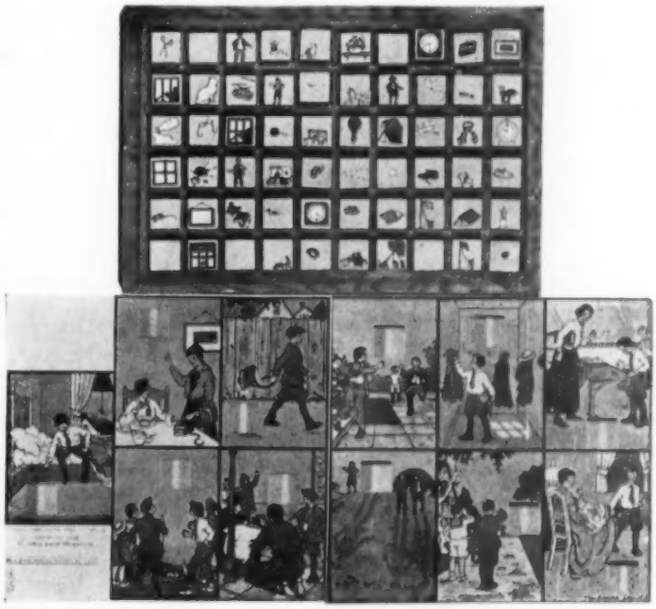
The alarm created by the statement that the population is only fourteen years old mentally is seen to be absurd according to both of these ways of looking at the problem. It

is statistically absurd because we have not allowed any ages beyond fifteen to figure into the average, and it is psychologically absurd in the light of what we know about the nature of mental development before and after adolescence. In dealing with adults we must use standards other than age as a basis for measuring intelligence, but this obvious fact opposes the habits of some psychologists, and so the misunderstanding has come about.

A Practical Example of Testing for Intelligence in Employment

Let us return to the office clerks. If our problem is to select junior office clerks, we cannot insist that they know anything about bookkeeping or filing systems or typewriting and shorthand, although they may. They are hired simply to do routine office work such as copying numbers and names, checking simple things for obvious errors, transcribing names and lists, sorting papers, and carrying messages. If you ask the employer to write down the qualifications, he is unable to specify any special training, because there is no particular training for the work of a junior office clerk. He will say that he wants clerks who can understand simple instructions, read carefully, write legibly, and learn easily, so that they may be promoted to more difficult tasks. In other words, he wants a keen mind, general intelligence, brightness, or alertness. Call it anything you like, but he knows the difference between the presence and the absence of that trait. We must test, therefore, for that trait. Here we are confronted with an employment situation in which the only suitable employment test would be a general intelligence test, or something equivalent.

It would not be fair to give to junior clerks an employment test that included questions about office procedure, bookkeeping, and typewriting. The test must be general. It must be a measure of the applicant's mental alertness without taking for granted any special training for the work. A regular school examination might serve the purpose indirectly, but it would not be quite accurate to give an examination in geography, civics, Latin, and geometry for a position as junior clerk. To be sure, those who could pass such a test would, no doubt, do well as clerks because they must have had fair mentality in order to pass these subjects in school, but such a test would do injustice to the candidates who have the ability to do the work without having enjoyed the formal schooling that an examination in these subjects would imply. The intelligence test serves the purpose of measuring mental alertness without depending entirely on formal schooling. In addition to the intelligence test it would be proper to examine the candidate on grammar, arithmetic, spelling, and ability to read difficult prose. In fact, an educational examination in these subjects would give results closely similar to those of the intelligence test. The inadequacy of an educational test in the latter subjects is that even a rather slow mind can with sufficient tutoring learn spelling and grammar and enough of arithmetic to pass an examination. The intelligence test measures not only what the candidate can do, but also how fast his mind works, and since this test is equally novel to all candidates the result approximates a fair comparison of their mental alertness.



This Healy pictorial test is on the same order as the other, but it is more difficult, and adapted to adults. The distinctions that determine which of the four or five possible blocks may be inserted in the empty spaces are finer and require more advanced and detailed observation than the test for children.
(Courtesy of C. H. Stoelting Company.)

[*To be continued.*]

CONNECTICUT PROGRAM FOR BACKWARD CHILDREN

Connecticut is providing for her 3,500 backward and subnormal children, and more than forty classes are reported as already formed in Bridgeport, Hartford, Manchester, New Haven, Somersville, Stamford, Torrington, and Waterbury. More than six hundred children have been placed in these classes, an average of fifteen children to each class. Some schools have two types of classes—one for children who are definitely feebleminded and one for those who are merely backward.

—The Nation's Health.

Messmates in the Human Body. II

ASA C. CHANDLER

FEW among us as children failed to "have worms" at one time or another, and there are many parts of the country where "having worms" is considered as much a part of childhood as dirty hands. In most instances the worms were the well-known little white pinworms, scientifically known by the dignified name, *Enterobius vermicularis*. These comparatively harmless residents of the intestine in youth cause little worry to parents, since, except for slight itching of nose and anus, minor interference with the action of the bowels, and sometimes a certain amount of nervousness and irritability, they seldom do any damage, although it has been claimed, on fairly good evidence, that they sometimes initiate appendicitis. And even when the worms prove to be the relatively huge eelworm, *Ascaris*, often more than a foot long and as large around as a lead pencil, they are looked upon as of little importance, unless they happen never to have been seen before, in which case their evacuation causes great consternation, and highly exaggerated accounts of the occurrence are reported to the neighbors.

In this paper, Dr. Chandler tells of the hookworm, how it manages to be carried from person to person, why its presence in the body of man reduces his vitality and physical and mental vigor, and of the discoveries that have been made recently in the treatment of hookworm disease. The life histories of other worms are also given. If man would use as much persistence in ridding himself of parasites as they display in hunting him down, he would promptly find himself unmolested by them.

Familiarity with these worms of childhood has led to contempt for intestinal worms in general, and their presence merely calls for the administration, at a convenient time, of some "patent medicine" for worms or a physician's prescription. As a result, other intestinal worms, especially hookworms, are passed over as of little consequence, and nothing to be worried about, since they are much smaller and far less impressive in appearance than is *Ascaris*.

Infestation with Hookworm a Menace to Health and Welfare

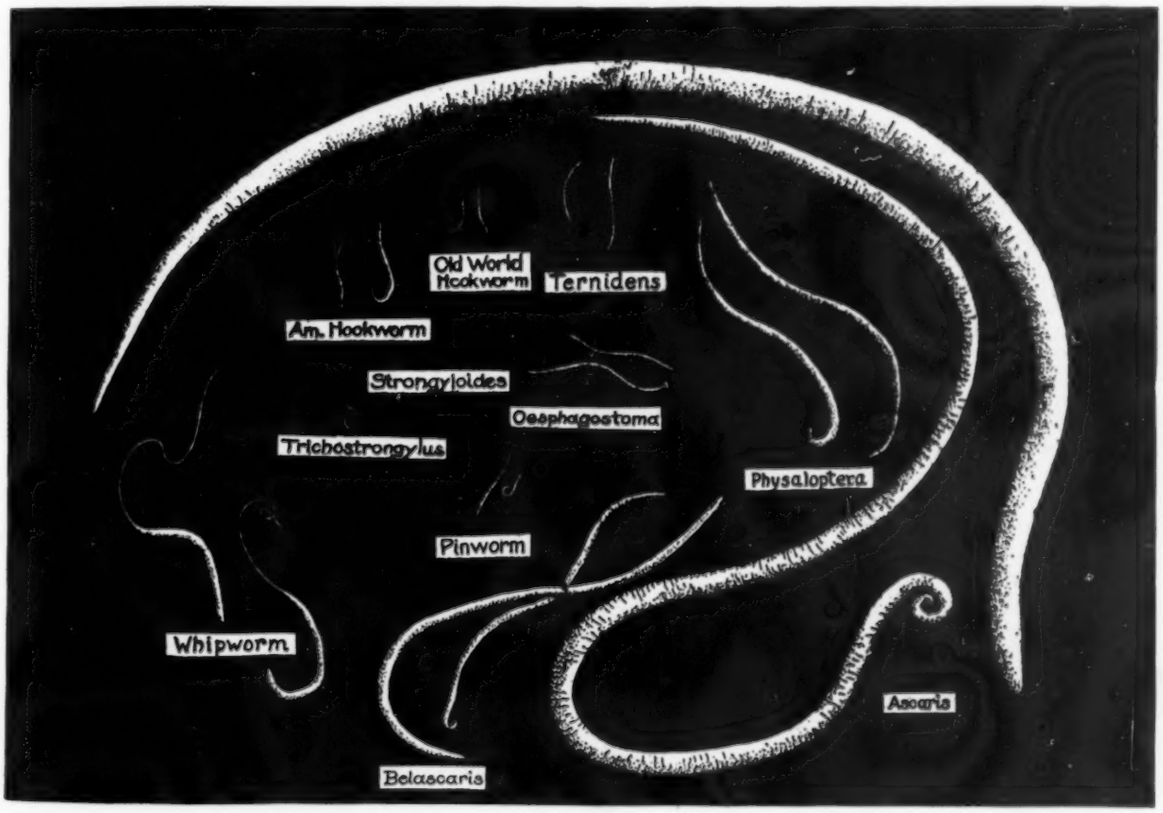
As a matter of fact, hookworm infestation constitutes one of the most important menaces to human health and welfare. In a great belt embracing the entire tropical and temperate parts of the world this scourge is more or less prevalent, affecting in many localities as high as 75 or 80 per cent., or even 90 per cent., of the population. The hookworm, insidious in its action, sapping human vitality, destroying the blood, injuring the intestine, and poisoning the entire system, slowly but surely drags down its victims and reduces a once prosperous and healthy community to a state of sickliness, ignorance, and poverty. After a little experience a traveler in the rural districts of the south can make a fairly accurate estimate of the prevalence and degree of infestation with hookworm in a given locality by the appearance and habits of the people. A hookworm community consists of pale, undersized, sickly persons, poorly and slovenly dressed, slow and lazy in their actions, apathetic and disinterested in disposition, deficient in mentality, lacking in ambition, and content to live under the most revolting conditions of poverty and filth.

Two species of hookworm attack man, but only one, the so-called American hookworm, is common in the United States. There is little doubt that this parasite, like a number of others, was brought to America from Africa with the slaves and, like yellow fever, is one of the evils visited on this continent as a result of the sins of our fathers. Probably due to age-long association with the parasite, the negroes have developed a relative immunity to the worm. Not only do negroes show fewer effects from infestation, but a much smaller percentage of them are infested. It is not uncommon in an examination of equal numbers of negroes and whites in a locality where the percentage of infestation of whites runs up to from 50 per cent. to 75 per cent., to find not a negro infested, or perhaps a few very lightly.

Life History of the Hookworm

The adult hookworm, one third to one half inch in length, clings to the intestinal walls, drawing the mucous membranes up into its mouth capsule by a sucking action, and sucks blood. It secretes a powerful toxic substance, which not only prevents the coagulation of blood, but also, when absorbed, causes all the dire symptoms which characterize the

infestation, destruction of blood corpuscles, loss of vitality, and stunting of physical and mental development. From time to time the worms move about, taking new holds, but the old bites continue to bleed for a long time after. Meanwhile the female worms produce enormous numbers of eggs. In cases of heavy infestation more than 4,000,000 eggs a day may pass out of the body with the stools. The eggs, under favorable conditions of warmth, moisture, shade, and air, such as are found in light sandy soil in shaded places in warm moist climates, hatch in a day or two; the larvae, feeding on fecal material, grow and molt, and within a week reach the infesting stage. After this they may live in moist sandy soil as long as six weeks, awaiting an opportunity to bore through the feet or hands of any person who is unfortunate enough to come in contact with them. Recent investigations in Trinidad showed that the larvae remain on the soil or within the upper half inch of the soil, climbing up on sticks, soil particles, and decaying vegetable matter, as far as the film of moisture extends, from which points of vantage they extend themselves, ready to adhere to any object which may come in contact with them. Contrary to the opinion long held, the larvae do not migrate in the soil for any considerable distance, but are scattered in various passive ways, as by surface water, on men's shoes or feet, and by domestic animals; three hundred and forty-four larvae were found in the soil clinging to the shoes of one person. Domestic pigs were also found to be an important factor in the dissemination of the larvae. The eggs are readily ingested by pigs with fecal material, pass through the digestive tract of these animals uninjured, are scattered far and wide with the droppings, and the majority develop into infesting larvae. Chickens also can serve as a means of dissemination, since a percentage of the eggs and larvae are capable of passing through their digestive tracts and of being voided with the droppings, uninjured, but a high percentage are destroyed in the gizzard or intestine, so that the Trinidad hookworm commission came to the conclusion that the destructive effect overbalanced the effect of the dissemination of the larvae.

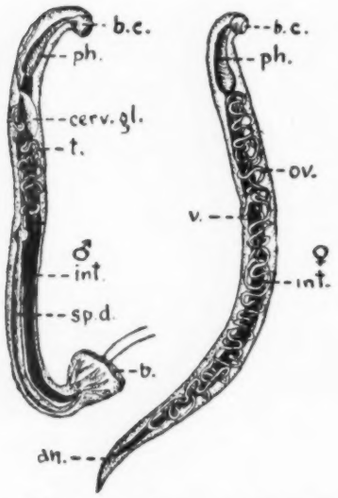


Various intestinal parasites of man, natural size. The male and female of each species are shown, except of Strongyloides, of which only the female is shown, since the male is not a parasite.

(From Chandler. Courtesy of Wiley and Sons.)

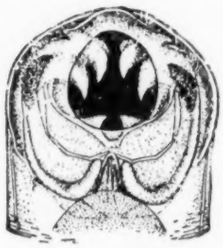
When the hookworm larvae, or soil containing them, come in contact with human skin, the larvae bore through very rapidly, causing the well-known ground itch, due to inflammation and infection of the wounds made by the young worms. They burrow through the tissues until they reach a vein, are carried by the blood stream to the heart and thence to the lungs, where, caught in

vessels too small for their passage, they burrow out into the air spaces of the lungs, are coughed up into the throat, and finally reach the intestine by being swallowed. Less often they enter the mouth with raw fruits, vegetables, or water, but even then they do not go directly to the intestine, but burrow through the mucous membranes of the mouth and throat, and go through their roundabout journey by way of the heart and lungs. About six weeks after their initial entrance into the body, they become sexually mature in the intestine, mate, and begin laying the eggs which continue to spread the infestation.



The American hookworm, magnified 8 times; the male is to the left, the female, to the right; b. c., buccal cavity; ph., pharynx; int., intestine; cerv. gl., cervical gland; t., testis; sp. d., sperm duct; b., bursa; ov., ovaries and oviduct; v., vulva, genital opining; an., anus.

(Partly after Manson. From Chandler. Courtesy of Wiley and Sons.)



The mouth of the old world hookworm, magnified 100 times. By means of these hook-like teeth it clings to the intestine of man.

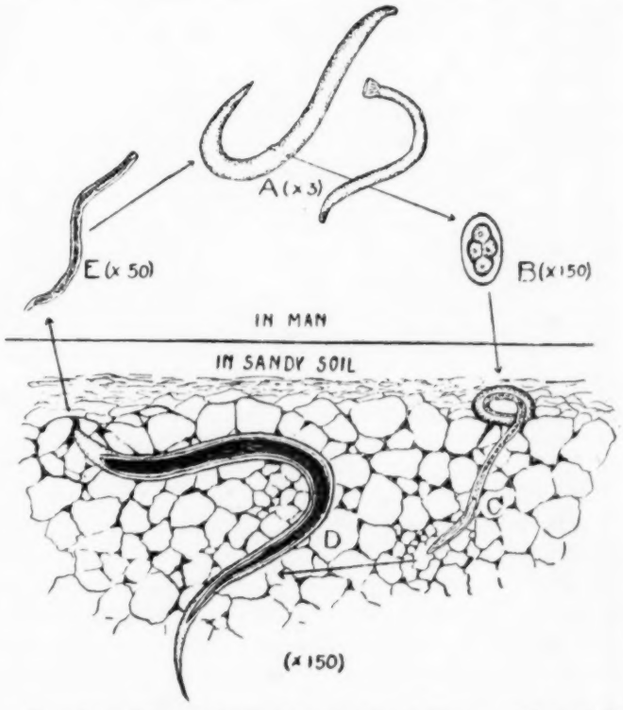
(After Looss. From Chandler. Courtesy of Wiley and Sons.)

Control Means Prevention of Pollution of the Soil

It is clear from this brief summary of the life cycle of the hookworm that prevention of pollution of the soil is the most important factor in the control of hookworm disease. The difficulties involved in this seemingly simple process were discussed in my first paper. During the course of the work on hookworm disease in one of our southern states, I was astonished to find that my suggestion of the use of a pit in the ground for defecation was commonly received as an entirely novel and unthought-of idea. Many intestinal parasites other than the hookworm can be controlled by various means, but there is no hope that hookworm infestation will ever be reduced materially until the pollution of the soil by the general population can be prevented by education or by law; the latter measure is especially applicable on large plantations, estates, or mines, where an overseer or manager can regulate the habits of his laborers. There are other ways in which the disease can be reduced in some degree, however. Sanitary privies for schools, of a type which could be used by private families, would serve the double purpose of preventing the spread of the infestation among the children and of giving an object lesson to the parents. The wearing of shoes would tend to lessen the amount of disease, but in most hookworm-infested districts shoes, at least in the summer time, are considered as much a luxury and nuisance as gloves. Disinfection of soil under certain conditions, as in mine "sumps," and around insanitary privies, would undoubtedly be of benefit, but little is yet known about the relative value of various disinfectants.

Evolution of Treatment of Hookworm Disease

In any method of control must be included the important factor of treatment. The treatment of hookworm disease has undergone an interesting evolution. Until 1880, extract of male fern, which is still one of our most efficient drugs for expelling tapeworms, was most commonly used for getting rid of hookworms. In 1880 thymol was introduced, and, with beta-naphthol as an alternative, was the classical drug for treatment of hookworm until about six or seven years ago, when oil of chenopodium was advocated. This



Graphic life history of the hookworm. The adult male and female (A) live in the intestine of man; the eggs (B) are passed out in the feces; they hatch in the ground twenty-four to forty-eight hours later (C); as fully developed larvae, enclosed in sheaths (D), they pass through the skin of man; they then lose their sheaths and grow to adults (E) within the body of the new host.

(From Chandler. Courtesy of Wiley and Sons.)

drug steadily gained in favor, and by 1921 became almost universally the preferred drug for expelling hookworms and *Ascaris*, since it

The smaller of these twin sisters, aged eighteen, is infested with hookworm.

(Courtesy of the International Health Board.)

was less dangerous than thymol, more effective, and cheaper. But in 1922 carbon tetrachloride, tried out on dogs with wonderful success by Dr. Hall of the United States Bureau of Animal Industry, was used on a large scale for infested persons, and was found preferable in all ways to any drugs previously utilized. It promises to become within the next few years a universally employed specific against hookworm which will remove practically 100 per cent. of the parasites in a single dose, and without the dangers or ill effects sometimes attending the administration of drugs previously used; as such it will be an inestimable boon to mankind.

Infestation with Strongyloides

Hookworms are very often accompanied by another worm which thrives under identical conditions, the tiny *Strongyloides*, barely visible to the naked eye. This little inhabitant of the intestine, which often causes prolonged intermittent diarrhea, but not the dire effects of hookworm disease, is related to the free-living nematodes which inhabit soil and stagnant water. Only females which reproduce without fertilization occur in the body, and these produce minute living embryos which pass out of the body with the feces. In the outside world these embryos either develop directly into infesting larvae or pass through a sexual generation which gives rise to the infesting larvae; in either case the latter thrive under the same conditions as do hookworm larvae, burrow through the skin in the same way, and make their way to the intestine by the same roundabout route through the heart and lungs. Like the hookworm, *Strongyloides* can pass through the digestive tract of hogs uninjured, and, in fact, can multiply in the hog's intestine.

Life History of Trichina

As compared with the hookworm, the other nematode worms which live in the human intestine are of minor importance, with the exception of the trichina worm. This parasite of rats, which finds a congenial habitation also in the intestines of hog and man and sometimes of other animals, differs from other intestinal worms in that the principal damage resulting from the infestation is due to the offspring of the infesting worms, and not to the adults themselves. The worms may reach maturity in the intestine within three days after entrance and within a week begin producing living embryos. The embryos do not pass out of the host's body in the orthodox manner, but make their way through the intestinal wall and through the body of the host, eventually coming to rest principally in the voluntary muscles. Here they remain,

The taller boy is eighteen years old. The shorter boy is nineteen; he has hookworm disease.

(Courtesy of the International Health Board.)

awaiting a chance to infest a new host when the meat in which they lie is eaten. In the course of a few weeks the muscle tissue of

the host walls in the parasite with a delicate cyst wall, which gradually thickens and eventually become hard, but the parasite sometimes clings to life for years, hopefully waiting for its host to be devoured, in order to secure its salvation and an opportunity to fulfil its destiny. The encysted parasites in the muscles are not ordinarily visible to the naked eye.

During the stage of development and reproduction of the parent worms in the intestine, which lasts only a few weeks, there are some intestinal symptoms, but the serious and often fatal effects of infestation are brought about by the migration of the young worms through the body, and the subsequent inflammation and destruction of invaded muscle tissue. The number of burrowing worms may be enormous. In a sample of sausage which I examined some years ago, some of which had caused a number of deaths, there were more than 2,000,000 larval trichinae to the pound—a conservative estimate. If a single ounce of such sausage were eaten there would be 125,000 potential parent worms in the consumer's intestine, half of which would be females, capable of producing at least 1,000 offspring apiece. In other words, one ounce of heavily infected sausage might be sufficient to cause the development of more than 50,000,000 embryos in the consumer's body.

It is obvious that the outstanding preventive measure against this dangerous parasite is complete abstinence from improperly cooked or prepared pork. Recent experiments have demonstrated, however, that pork can be rendered safe for consumption in various forms of sausage, which is so much relished by some European peoples, without thorough cooking. For instance, refrigeration at a temperature of 5 F., or less, for twenty days destroys the vitality of the larvae. Meat raised to a temperature of 137 F., a temperature at which water feels uncomfortably hot to the hand, is rendered harmless, but it is important to note that even in boiling water meat does not heat through quickly, and about thirty minutes of boiling must be allowed for each two pounds of pork. Roasted pork which is distinctly red in the center should be considered unsafe. There are also some methods of salting and smoking which, when carried out under certain conditions, render the pork harmless, but for the average person the only safe criterion of the fitness of pork for food is whether or not it has been cooked thoroughly.

Every member of these three generations of one family in Tennessee was found to be suffering from infestation with hookworm. (Courtesy of the International Health Board.)

The Pinworm

Beside the trichina only three other intestinal nematodes which occur in man are common, the pinworm, the whipworm, and the eelworm, or *Ascaris*. The pinworm, mentioned as one of the incidents in the life of most children, has a simple life history. The adult females, filled with eggs, wander back to the rectum, whence they are passed out of the body or they creep out, especially at night, causing intense itching. From the scratching and rubbing which this causes, the finger nails of the host become contaminated with eggs, already containing coiled embryos, and during sleep they may be directly or indirectly transferred to the mouth of the same child, or a bedfellow. Flies or contaminated water or vegetables may also scatter the infestation, but unclean hands play the major rôle. Two or

three weeks after the eggs are ingested, the worms begin producing eggs in the intestine.

The Whipworm

In the case of the whipworm and *Ascaris*, infestation takes place through the swallowing of eggs, but several weeks outside the body are required for the embryos to develop within the eggs and reach an infesting stage. In the case of the whipworm, as far as known, the eggs when taken in with water, carelessly washed vegetables and fruit, or fly-trodden food, go directly to the intestine where the embryos hatch and grow into adults. The whipworm, like the pinworm, often invades the appendix, and, burying its head deep in the mucous membrane, allows a portal of entry for bacteria. The ensuing inflammation may sometimes be the initiating cause of appendicitis, although the frequency of this is disputed by many parasitologists. As a rule, certainly, the whipworm produces no noticeable ill effects, and this is a fortunate circumstance, since it is almost impossible to dislodge the worms from their holds in the intestine by means of drugs.

This girl, sixteen years old, had been an invalid since childhood on account of infestation with hookworm. She had been treated for malaria and tuberculosis. A short time after being cured of hookworm disease she was plump and healthy.

(Courtesy of the International Health Board.)

The Eelworm, Ascaris—Newly Discovered Dangers

Until a few years ago *Ascaris*, the large roundworm which is almost universally present in hogs, particularly in the young, and which is present in a large percentage of children and in many adults, in insanitary communities, was believed to have a similar life cycle. But recent investigations have shown that *Ascaris* does not undergo such a simple development in the body, and is perhaps a more dangerous parasite than was formerly supposed, in ways which were then entirely unsuspected. When the matured eggs of this worm are swallowed, the coiled embryos contained within them escape into the intestine, but do not remain there. Instead, they burrow into the intestinal wall, make their way to the liver, and then by way of the heart, to the lungs. From the lungs they pass to the trachea and throat, and are eventually swallowed in the same way as are hookworm larvae. It has been shown experimentally that the migration of *Ascaris* larvae in the lungs may produce pneumonia in small animals and in pigs, and it is quite possible that the injuries done to the lung tissues may render them susceptible to other and more deadly forms of pneumonia, and to tuberculosis. That these effects on the lungs occur in man as well as in other animals cannot be doubted, but until the last two or three years there has been no reason for connecting pulmonary troubles in children with *Ascaris* infestations, and consequently even when the one preceded or accompanied the other, no significance was attached to it. The effects of the adult worms in the intestine vary greatly with different persons, from almost complete harmlessness, to anemia, intestinal irritation, extreme nervousness, epileptic fits, and so forth. Recent investigations have shown that blood-destroying substances are liberated by *Ascaris* only when it dies and disintegrates, and it may be that not only the anemia, but also the other symptoms are produced largely by dead or dying worms.

Although *Ascaris* infestation may occur in persons and hogs of all ages—I have found cases in persons more than sixty years old—susceptibility in man and hogs decreases with age; the rate of infestation in children of school age is always relatively high. In part, of course, this is due to the more careless habits of children, giving many opportunities for infestation, but it is quite certain that this is not the only factor, and that age itself brings more or less immunity.

Prevention of *Ascaris* and whipworm infestations, as of hookworm, could most effectively

be accomplished by the sanitary disposal of excrement, and with greater ease, since the eggs do not hatch outside the body, and there is no possibility of migration of the larvae through soil from lower levels. The eggs of *Ascaris*, however, are extremely longlived, and continue to harbor active embryos, if not allowed to dry completely, for several years. Eggs left exposed to the sun in India on glass slides without water contained active embryos at the end of six weeks. Furthermore, the shells of the eggs are so resistant that such chemical agents as strong acids, saturated copper sulphate solution, and formalin, do not destroy them, although phenol (carbolic acid) solutions are said to injure them. This high resistance makes it almost impossible to destroy the eggs by disinfection, and soil exposed to continual pollution by hogs or man may accumulate a great number of eggs. In the case of *Ascaris* and the whipworm, however, care as regards water supplies and the use of raw vegetables and fruits and protection of food from flies would greatly reduce the prevalence of these worms. *Ascaris* responds readily to treatment with santonin, or, still better, with oil of chenopodium.

The Keynote of Prevention

From this brief account of the principal nematode worms which make themselves such unwelcome guests in the intestine of man, it is obvious that, except in the case of trichina, proper sanitation and cleanliness with regard to the disposal of human excreta is the keynote to prevention. The time when the value of proper sanitation will be sufficiently realized to make man as careful in his personal habits as are some of the domestic animals, is still in the future, but it is reasonable to hope it will soon be at hand. It is significant that the domestic cat, which sanitarily covers up its excreta, has, on the average, fewer intestinal parasites than the less careful dog. This should be an object lesson to the animal which preaches that "cleanliness is next to godliness."

Your Opportunity for Health

W. S. RANKIN

IN this modern day of big things, when our eyes are so much on mass movements and governmental and social machinery, the individual has almost been lost sight of. We see the perspective, and we fail to discern the finely chiseled features of the man standing among the many. In thinking of society so much, we think too little of the individual. Individuals make society; society does not make individuals. When the Great Teacher saw the multitude, he left them. He forsook the crowd and went into the mountain, into a solitary place, and delivered to a few men, a small select group, the everlasting principles upon which the future of the world depends. When Abraham argued with God for the salvation of the million of people living in wicked Sodom and Gomorrah, God promised to save the nine hundred and ninety-nine thousand and nine hundred and ninety if Abraham would find only ten righteous people living in those two wicked cities. Salvation, physical and spiritual, personal and social, past, present, and future, has always rested in the large and in the last on the individual.

You are suspended on the social life line, and you determine largely your position on it. Dr. Rankin believes that few of us cannot fight the way to a higher level of health and happiness. It requires eternal vigilance, but it is not a burden—it is an inspiration once you have the right conception of health.

Health is the primary and the most fundamental condition that determines what the individual is to be. On health rests vigor; vigor conditions interest in the opportunities of life; interest determines whether effort, physical and mental, is to be fatiguing work or fascinating play; the fascination of work underlies efficiency; efficiency conditions satisfaction; satisfaction is the key that opens that realm of life which, in the here, we call happiness, and in the hereafter, heaven. The individual's part, your part, in determining what your health and its attributes shall be is illustrated by an old story as true today as it was in the hazy dawn of Grecian mythology.

The fates were three women who determined destiny. Their names were Clotho, Lachesis, and Atropos. Clotho spun the thread of life and determined its vital quality. Lachesis held the thread in her hands, measured off the days and years, and recorded the chief events. Atropos, the grim visaged sister, held the scissors, decided when life should terminate, and clipped the thread. These three women of ancient Greece are still with

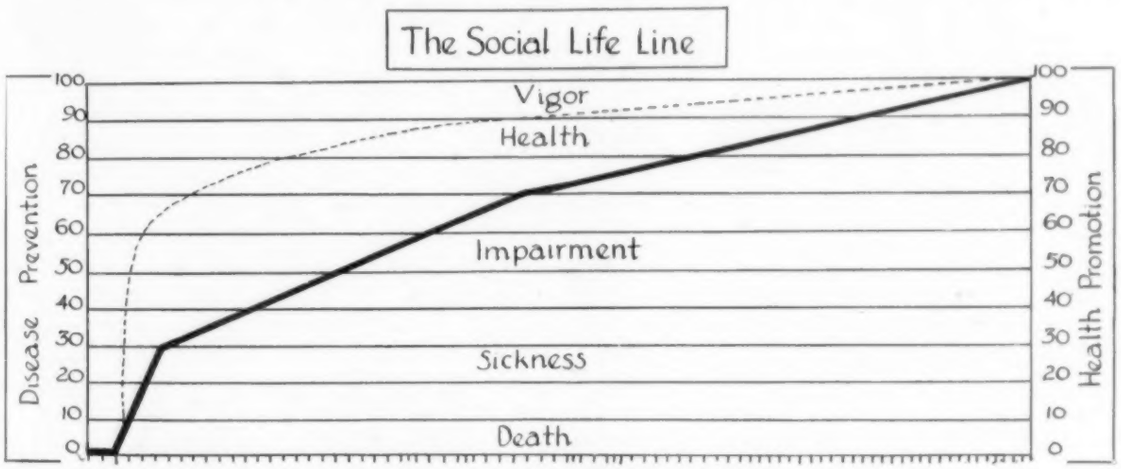
us, having changed their dresses and their names, but not their business. Today Clotho is called stock; Lachesis, society; and Atropos, self, the three fates having become the three "S's." Stock spins the thread of life and determines the quality of your being. Over this fate you have no control. Stock is deaf.

> The moving finger writes; and, having writ,
> Moves on: nor all your piety nor wit
> Shall lure it back to cancel half a line,
> Nor all your tears wash out a word of it.

Society holds the thread of life in her hands, keeps a record of its beginning and its ending and its chief events, and determines to some extent the conditions through which it passes. Over society you have a little control, your controlling influence corresponding in a large measure with what you do for her, but at best you have but a small influence. Society is not as deaf to you as stock, but she is very hard of hearing. Self clips the thread with the keen-edged scissors of an acute disease or sudden death or haggles away at the frazzly thread with the dull edge of a chronic disease. Self, mind you, holds the scissors; self says when. Over self, unlike deaf stock or society, hard of hearing, your control is as complete as you care to make it. Your life, your health, your vigor, your interest in your work, your pleasure, your efficiency and happiness are, after all, largely in your own hands.

Your health officer is sent to you as the agent of society. He is employed by and owes his services to the thousands, hundreds of thousands, and millions who pay him his salary. Your part of society's time is represented by a fraction, the numerator of which is one and the denominator the total population of the city, county, or state for which the health officer works. If you live in a city of a hundred thousand that spends fifty thousand dollars a year in protection of the health and lives of its citizens, and if your health department works ten hours a day, your part of the time of the health department during the course of the year is twenty-three minutes. Society reaches you only by long distance, and at longer intervals with a bit of advice that is of service, or with some protective vaccine or serum that is free, or with the limited protection that its quarantine against contagious diseases affords you. Society's limitations to reach you are many and her opportunities to serve you are few.

You, on the other hand, find opportunity at every turn, at practically every step, of life's journey. You may give the matter of your health a day's consideration for every minute that the health officer can give you. You spend on a single premium of an accident or sickness insurance policy a sum greater than the amount appropriated by society for the protection of your health during your entire lifetime. Opportunity for improving and promoting your physical vigor is as constantly with you as the air and as near you as your clothing. This opportunity gets out of bed with you in the morning, directs your bath, selects your clothing, brushes your teeth, orders a wholesome meal, cleanses your system, modifies the air that you breathe, regulates your work and play, influences your reading, and leaves you only at the end of the day safely and soundly to the recreating power of sleep.



Where are you on this social life line?

Your opportunity for health improvement appeals to you with strength that is in exact proportion to your understanding of the meaning of health. The average man conceives health to be a condition that permits a person to be out of bed and about his business, or, we might say, makes the distinction between health and disease by the difference between the perpendicular and horizontal positions of the body. This common impression is altogether wrong. There is no sharp distinction or abrupt break between health and

disease. The one fades by almost imperceptible gradation into the other. There is a real life line that serves well to bring out the fine difference between health and disease.

The real life line exists, not in fake, but in fact, not running through the palm of the hand, but running through the various vitality levels of the average composite group of society. By composite group of society is meant a group that includes the races, sexes, ages, and physical conditions as they exist among the people generally. In order to include all the physical levels within the group, our composite group must be large enough to include one person who dies during the year. As one person of approximately eighty-four persons dies during the year, the group will consist of eighty-four. These eighty-four are indicated by the eighty-four equidistant spaces in the diagram. Each space represents one of the individuals of the group. The heavy dark line, passing from the lower left hand corner of the diagram to the upper right hand corner, is the social life line on which are suspended, at the various levels of vitality, the eighty-four members of the group, their vitality level being indicated by the segment of the line lying immediately above the space of the base line. This social life line spanning the distance between the quick and the dead begins with the first inch on the base line at zero vitality, indicating the one person who dies during the year. The next section of the line, ranging from the moribund at almost zero to the 30 per cent. level of vitality and lying above two of the spaces on the base line, indicates the two members of the group who are sick abed to the point of incapacitation. The next thirty-three inches of the social life line, passing through the zone of impairment from the 30 to the 70 per cent. level of vitality, represents the thirty-three persons of the group, some of whom are "just able to be up and about," and others of whom are "not quite up to the scratch," and others intermediate between these two states of being. Next we come to the thirty inches of the line spanning the zone of health between the 70 and 90 per cent. levels of vitality and representing thirty persons who may be classified as healthy—neither impaired nor vigorous—but healthy. Then, finally, we come to the last section of the line, lying between the 90 and 97 per cent. levels of life and representing twenty members of the group who are vigorous in mind and body, who live on the heights of being, who are inspired with lofty views and high ideals, and who pursue their tasks with enthusiasm.

You are suspended somewhere on such a life line. You determine, very largely, your place on the life line. There are few of us whose positions on the life line are rigidly fixed by circumstance, who cannot by the alteration of some habit, by cutting out too much tobacco, by regulating the diet, by properly apportioning work, rest, and sleep, by better regulating waste elimination, few of us who cannot move up the social life line to a higher level, 10, 20 or 30 per cent. higher. If there were some short cut to moving into a lofty realm of being, some patent medicine that you might buy, what a price you would pay gladly! But there are no short cuts by which to attain the physical ideal. We reach the heights of physical life by right habits followed day in and day out. The price of health, like that of liberty, is eternal vigilance.

The vital level at which you live has much to do with your attitude toward life, with your reactions to your surroundings. Life is nothing more than a series of reactions to stimuli, physical, chemical, and spiritual. The finer stimuli—to which only a body keenly active is sensitive—are of a character referred to as inspiration. "And the Lord God formed man of the dust of the ground, and He breathed into his nostrils the breath of life, and man became a living soul." Inspiration, the second of the three steps in man's creation, followed the making of a perfect form and was conditioned by physical perfection. So it is today.

The health motives are, like the great motives of life in general, two—fear and love. One drives, the other pulls. One is a negative force and the other a positive one. Fear of disease in the physical world, like the fear of hell in the spiritual realm, is a force to drive the primitive, the ignorant, those of small understanding, those who live at such a low level of life as not to be in touch with the larger view and the higher ideals. The love of life, the love of the physically perfect, like the love of the perfect of the higher order, is the positive ideal, a thing that forever lifts upward to the higher levels of life. You are not likely to attain the possibilities of your physical being, with all which that carries with it, if your chief object is to avoid actual disease. On the other hand, you are most likely to attain to a vigorous, efficient, and happy life if you get the right conception of what health is and realize the possibilities of its attainment.

You may help your health officer, indeed, you will help your health officer, if you get the right conception of health, if you fall in love with health and lose the fear of disease, if you realize that where society has one opportunity to improve your health you have a thousand such opportunities, in short, if you understand, as wise old Benjamin Franklin said, that "God [and society] helps those that help themselves."

The Missus and I sat on the swing on the back porch and watched the movers hustle in the furniture. . . . the kind of stuff they were selling back in 1902. . . .

"I wonder how many children they've got," says the Missus.

"Fifteen years—oh, three or four."

"No," says the Missus, "it can't be that many. I saw one baby bed go in there, and that was so little it would hold only a tiny baby."

Neighbors—A Story for Mothers

MORRIS FISHBEIN

OCTOBER second they moved into the lower east flat. The Missus and I sat in the swing on the back porch and watched the movers hustle in the furniture. They were newlyweds; we could tell that partly by their mushiness and partly because the furniture was all in crates. The young bride stood in the yard and watched the unpacking of every piece. Then, too, we saw they didn't have any dishpan or washboard or ironin' board—newlyweds always forget those things.

The other family went into the lower west flat. They were not newlyweds; we knew that too. First came a lot of furniture in quarter-sawed oak with a big sideboard and a square table. That's the kind of stuff they were selling back in 1902. Then came some brass beds and some Jacobean furniture and finally along came a brand new black mahogany sun parlor set, all dolled up with pink flowers. We had seen it on sale down town only the day before. No—they were not newlyweds; more like fifteen years we guessed it.

"I wonder how many children they've got," says the Missus.

"Fifteen years—oh, three or four."

"No," says the Missus, "it can't be that many. I saw one baby bed go in there and that was so little it would hold only a tiny baby."

Well, come to find out later, they didn't have any children at all, but one was expected. A long way off, too! But they'd been fifteen years waiting for it, and when she knew one was coming, Mrs. Thompson—that was the name of the older couple—went right out and bought a bed and clothes and a bath tub and lots of other little things that a baby needs.

It didn't take long before the Missus knew both of them. The young one—Mrs. Cary was her name—had been married a while before they moved in. They'd been away on a honeymoon trip west—Yellowstone Park, Yosemite Valley, Long Beach, and then back on the Santa Fe.

"And say," giggled the Missus when she told me about it, "she's going to have her's before the other one."

"Her's?" said I. "Her what?"

"Oh, you dummy," pouted the Missus, "her baby. She's scared to death, poor thing. Says she don't know anything about babies or about having them."

"Well, what does the other one know?" I asked.

"Still less," answered the Missus. "Says she's going to have twilight sleep."

"It's a good thing"; I said, "she ought to have it every day. I wish I could get one every afternoon."

That tickled the Missus. She laughed till she darn near shrieked while I got red and then puzzled and finally mad.

"Come out of it," I said. "What's the joke?" "What's the matter now? I guess a nap in the afternoon wouldn't rest me, huh? If I could get away from the shop at four and lie down till supper that wouldn't do me any good, I guess?"

"Hah! hah!" she laughed. "Oh! oh! my! Oh! my side! Oh! you silly thing!"

When she finally explained, I found it was a fancy name for letting women have babies without their feeling it. Seems they inject them with some stuff that makes their memory so short they can't remember from one minute to the next.

"What's the other one going to take?" I asked.

"Her doctor doesn't believe in twilight sleep. He says too much interference may hurt the baby; it seems to make the whole thing go slower, and besides, he says, women forget all about it right after the thing is over anyway. He says that no two women suffer alike, and that what goes with one don't go with the other. He says no routine can be laid out. The thing to do is to use just what's needed for the case in hand."

"Who's her doctor?" I asked the Missus. "Do I know him?"

"I guess not," she answers. "She tells me though that he does nothing else but take care of women with babies and he's going to take her to the hospital where he does all his work."

"To the hospital? What's the matter? Is she sick or something?"

"No," answers the Missus to all these questions. "She's just as healthy as anyone could be. But that's the way they do things nowadays. The doctor says that in the hospital he can take lots better care of her. He'll have nurses, sterilized rooms, sterilized sheets, sterilized water, rubber gloves, and all sorts of things that he might need right at hand."

"And Mrs. Thompson," says I, "is she going to a hospital?"

"She doesn't really know, so she says," answers the Missus. "She hasn't seen any doctor yet. Says she feels all right and don't think it's necessary. Yesterday she walked three miles down to the park. You know on Sunday when we try that walk I get all fagged out."

About a month later the Missus says, "Mrs. Thompson was in to see me today—you know—the older one."

We'd got to calling them the older one and the younger one.

"Brought in some clothes to show me," the Missus went on; "and she bought herself some of those new side-lace shoes; paid eleven dollars for them; she says the older ones are not the least bit comfortable any more because the exercise she's been taking has made her feet get bigger. She was all in from her trip down town."

"When's the baby coming anyhow?" I asked.

"Oh, she thinks about the first of May."

"How about the younger one?"

"Her's ought to come in April."

As we were walking down to the park the next Sunday the older one and her husband passed us on their way back.

"I forgot to tell you," said the Missus, "she saw her doctor yesterday. The new shoes didn't help her feet. They still hurt and swelled so her husband took her to Dr. Josephs. She says he's a physician, surgeon, and specialist."

"Pretty fancy, old girl," I says. "Why all the titles?"

"This doctor claims that he is not like the old-fashioned doctors; he uses all the specialties. You must have seen his big sign on that building near Thirteenth Street. He told her she's getting along all right and he'll take care of her. He said for her to come back in about a month and he'd look at her again. Said he wanted to make a laboratory examination some time so he could find out about her kidneys. Mrs. Cary goes every two weeks to her doctor and he makes a laboratory examination every time and gives her a record of it to keep."

"What's he found out?"

"Says she's fine," continued the Missus. "But my land! Why shouldn't she be? He lets her walk just enough every day. She's not allowed to do her heavy work around the house and he's even fixed her up a list of what to eat and what not to eat. I read the list of what not to eat the other day. The older one eats them all and then some—pastries, roast pork, pickles, and any other old thing."

By and by I heard that Mrs. Thompson's doctor made his laboratory examination and found a lot of albumin. That's a sign of kidney trouble. He gave her some medicines to take, some pills and some stuff in a bottle and a special kind of drinking water. He told her to go ahead with her exercise and eat what she wanted and to come back in three weeks to be examined again. He rubbed her and adjusted her back and tried

That tickled the Missus. She laughed till she darn near shrieked while I got red and then puzzled and finally mad.

some electricity. She came back and then he found a little more albumin than before. Then he made her throw away all the first medicines and he gave her some others and told her to come back in three more weeks. That time he did some special massage and adjusting. The Missus and the other two women had a confab about that time and I heard later that Mrs. Cary acted pretty mad. She'd told her doctor about Mrs. Thompson and he'd got all worked up. He said such handling of things was gross carelessness, and that good doctors had quit trying to dope such cases. He said she ought to be taking a strict diet and having examinations at least every week or oftener and that she ought to be having her exercise and actions properly regulated. After he was through talking he asked Mrs. Cary not to mention what he'd said—that it wasn't just right to criticize another man's work without his having all the facts about the case and he hoped she'd forget it. But you know women—of course she couldn't keep it to herself.

Things went on in just about the same way. Mrs. Thompson was getting more and more irritable all the time. She kept on saying she didn't know how she was going to bear being tied down to take care of a baby. All her club friends were calling her up and asking her about things and telling her what good times they were having and it aggravated her.

We saw a big touring car drive up one day and she came out of the house all bundled up in a big coat.

"I'm going riding," she giggled. "Mr. Thompson would be awfully mad if he knew it, but this is such a beautiful day and Mrs. Merkle's car is so comfy and I'm not going

to miss this chance. Anyway, my doctor said I could go visiting if I felt all right and didn't try to climb up to some third floor flat."

She got back about five thirty in the evening. We heard the klaxon blow when they came up. The next night the Missus said:

"I saw Mrs. Thompson this morning, and the poor thing caught an awful cold. Her nose runs and she coughs and her eyes are red. She called her doctor up and asked him what to do and he told her to gargle with some salt water. She says her eyes hurt her more than anything else; they feel like they had a kind of film over them. The funny part is that little Mrs. Cary is worse worried about it than Mrs. Thompson is. She's going to call up her doctor tonight and ask him what he thinks about it."

Mrs. Cary came to see us just after we'd finished dinner next day.

"I wish you'd go to see Mrs. Thompson," she said. "My doctor says that what she's got usually means something serious. You ask her if she don't think she ought to call her doctor."

The Missus did that, and Mrs. Thompson called up her doctor and asked him to come out. She caught him right in what he said was his busy time. He had twenty examinations to make for a business circle he was connected with. He told her if her cold didn't seem better to take a warm bath and go to bed.

The next morning things began to happen fast and furious. About seven we heard a knock at the door. It was Thompson.

"Will you come down and stay awhile with Pansy?" he asked the Missus. "She can't see a thing this morning and has a splitting headache. I've called the doctor and he says he'll come right out."

When they got to the foot of the stairs, Mrs. Cary came out of her door leaning on Mr. Cary's arm. There was a big taxi limousine out in front.

"I'm on my way," she laughed. "My doctor says I ought to come to the hospital and rest a week before the baby comes. Then he can see her oftener too."

The Missus was so flustrated kissing her and telling her goodby and promising to come and see her that she forgot to tell her about Mrs. Thompson. Afterward she was glad of it.

The Missus went into Thompson's and saw poor Mrs. Thompson lying in her bed and breathing hard and moaning and every now and then coughing a funny little wheezing cough.

"I can't see," wailed Mrs. Thompson. "I'm just so dizzy I can't stand. Joe's sent for the doctor, and he's coming pretty soon."

Finally the doctor came, a little fat man with some whiskers parted in the center. Across his vest he had a big gold chain and in his vest pocket there were a lot of thermometers and pens and pencils. There were some grease spots on the vest, too, and the Missus remarked later that he was so fat that she didn't remember much except the vest and what went with it. And she noticed his hands because she's rather hipped on that subject. She thinks she can tell a gentleman from a cad, a minister from a gambler, or a doctor from a quack by their hands. This man's hands were fat and pudgy. Two of the fingers didn't have any ends on the nails at all. "They looked chewed off," the Missus said. The others were prominent on account of their length and blackness. The Missus guessed right by the hands this time, but anyone else could have figured character from those hands. He reached one of them out and grabbed hold of Mrs. Thompson's wrist and said:

"What's a matter with my girl this mornin'? Do you know, young lady, you've made me miss half of my breakfast?" Then he turned around and beamed at the Missus, who didn't beam one beam back at him, and at poor Mrs. Thompson, who lay there all in a sweat. Mrs. Thompson didn't answer, but just looked at him with a kind of empty look and kept on moving her fingers and sort of jerking her arm.

That beam faded right off his face. He looked mighty serious.

"I guess we'd better take her to the hospital," he said.

"But doctor," said Thompson, "the baby isn't due for more than a month yet."

"She's mighty sick," said the doctor. "We might have to take it from her."

"I'll get my things and go along with her," said the Missus.

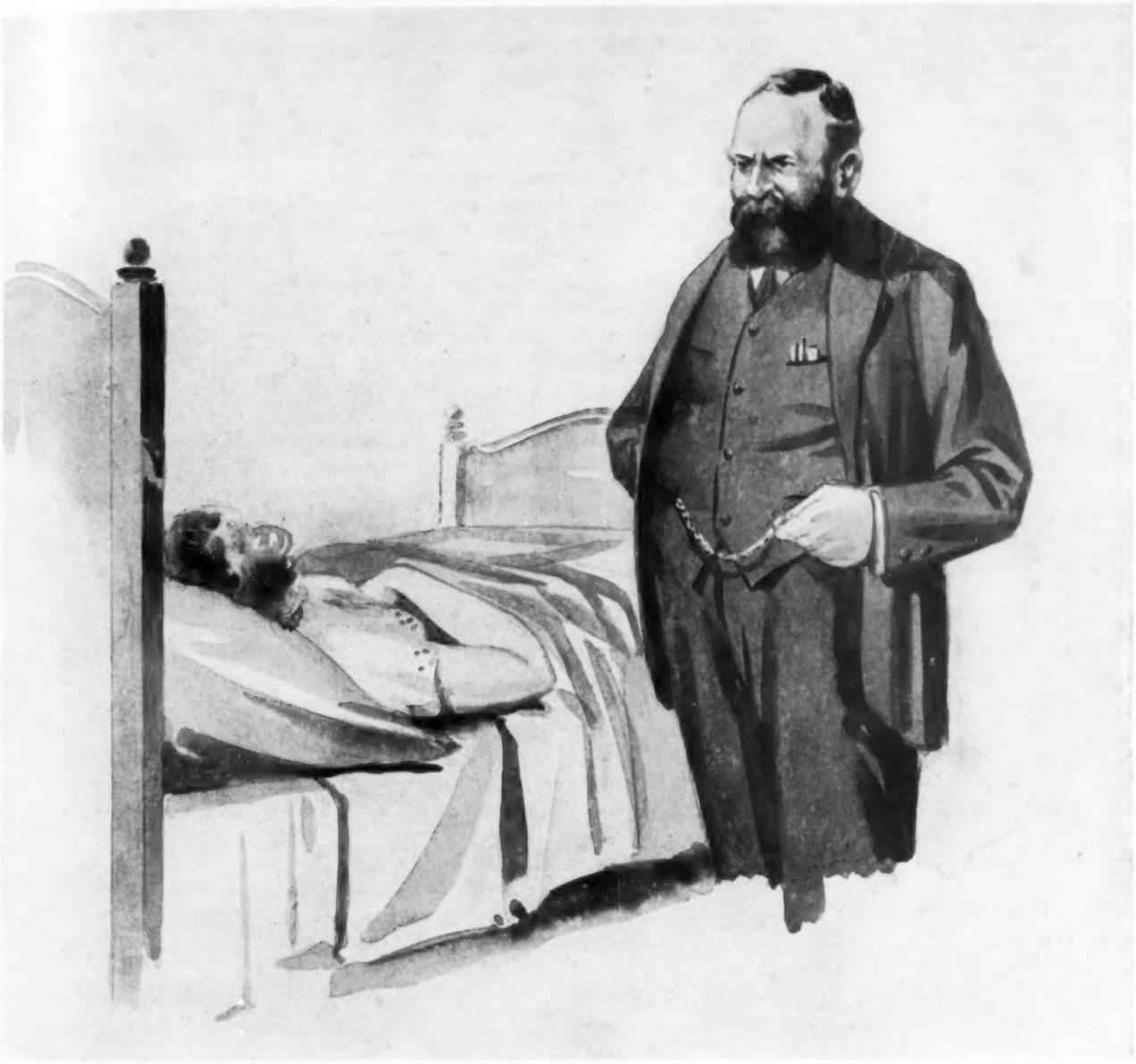
"If you just will," said Thompson. "Poor Pansy. How can I thank you for what you're doing for her."

He called a taxi and they all bundled in. Mrs. Thompson didn't quite seem to sense what it was all about. Just as they reached the hospital she became unconscious, the Missus said, and as they put her on a cart to take her in, she started to twitching and shaking all over and to gnashing her teeth. The doctor took one of the pencils out of his pocket and put it between her teeth; "so she wont bite her tongue," he said. And he looked to be a mighty worried man.

The Missus was getting nervous too.

"Will she die?" the Missus asked.

"Lots of them do," the doctor answered. "I guess it's a case of eclampsia, although it might be just a toxemia. I guess her kidneys being so bad has let a lot of poisons pile up



Finally the doctor came, a little fat man with some whiskers parted in the center. Across his vest he had a big gold chain and in his vest pocket there were a lot of thermometers and pens and pencils. There were some grease spots on the vest, too. . . .

in her that ought to have come out. She wouldn't pay any attention to what I said and she wouldn't come down for her examinations and I guess it's about as much her fault as anyone's."

The whole trouble with him was the guessing he did.

They took Mrs. Thompson into an operating room. The Missus sat down in the hall to wait. She noticed the "hospital" was just an old house worked over.

An hour or so later they wheeled the cart out with Mrs. Thompson lying on it flat and dead looking.

"Its a little five-pound boy, and they had to sew more than fifty stitches in her," Thompson said. "They've put the baby in a big basket with hot-water bottles all around him to keep him alive."

The next few days the Missus was busy calling up the hospitals to see how the neighbors were getting along. She heard encouraging reports from both. About five days passed and then they told us Mrs. Cary had had an eight-pound boy during the night, "mother and baby both doing well, father mighty weak," said Mr. Cary over the telephone. The Missus said she'd be right over, but Mr. Cary answered, "We'd be glad to have you, but the doctor's rule is that she can't have any company for at least three days, and won't sit up until the tenth day."

"I'd be mad at his old rules if I hadn't seen what they've done for Mrs. Cary," the Missus remarked.

After the Missus had been to visit her she was mighty pleased about the treatment Mrs. Cary was getting. The hospital was a big

place, clean as a new pin, all the nurses in neat uniforms. Mrs. Cary's baby had lost a few ounces the first three days, but by the time the Missus made her visit he had started in to getting his milk regularly and then the little rascal began to grow like a house afire. In a couple of weeks they brought Mrs. Cary home.

She was proud and happy and smiling to think how she was going to tell Mrs. Thompson her experience and exhibit the fine boy. On account of her nursing the baby the doctor wouldn't allow anyone to tell her bad news. Of course when she got home and asked for Mrs. Thompson they had to tell her all about it. She was downcast for a while, but then the little codger yelled for lunch and as she held him to her and crooned, she looked peaceful and contented.

Then Mrs. Thompson came home. She'd had to leave the baby in the hospital because it wasn't gaining any weight and she couldn't nurse it or take care of it. She hadn't got back her sight and was very weak. She looked about half as big as she did when we first saw her. Most of her weight had been due to the swelling.

The next night when I got in from work I found them all in the lower hall. There was Mr. Cary and Mrs. Cary and Mr. Thompson and Mrs. Thompson and Mrs. Thompson's mother, who had come in from the country to take care of her daughter, and then there was the Missus. As I came in the door I heard the Missus say, "It's not the doctor, it's Jim."

"They've sent for us," Mrs. Thompson wailed. "I'm afraid my baby's going to die. He's such a cunning little thing, and I've never seen him. They say he can't live through the night."

Just then the bell rang and Mrs. Cary's doctor—he was taking care of Mrs. Thompson now—came in. He looked around a second, then he took Mrs. Thompson and her mother into their flat and shut the door behind him. We all stood around kind of foolish in the hall for a minute, then Mr. Cary kissed his wife and I kissed the Missus and we went up to our dinner. I don't remember saying a word while we were eating, and I don't even remember what I ate or if I ate anything.

We heard afterward that Mrs. Thompson would never recover her sight completely and that the doctors had said she ought never to have another baby.

I guess it was when we were all in to the first birthday party of young Master Cary that Mr. Thompson summed it all up.

"Here we are, all neighbors," he said. "Cary and Mrs. Cary starting into real life and part of their family already here to live it with them; you and your Missus starting down the final stretch with your big boys and girls bringing their kids for you to enjoy with them. And then there's Pansy and I. Her life is spoiled and mine is lonely. We didn't have them when we should and then when we wanted to, everything seemed to go wrong. We've found out that when a fellow claims too much he can't give value received. We've found out that there's something to being prepared and that prevention saves a lot of trouble. If Pansy had only known the right things to do and what not to do, she never would have had to go through what she did."

SAVE THE MOTHERS AND THE BABIES

In the period from 1915 to 1921, there was a substantial reduction in the infant mortality rate in the birth registration area of the United States, but five nations still have lower rates than the American. A study of vital statistics showed that little progress was being made in reducing the deaths in early infancy, including deaths caused by premature birth, congenital debility, and injuries at birth, which have maternal causes. Consideration of infant mortality therefore inevitably led to the question of the care mothers are receiving before, during, and after child-birth. Unfortunately, the maternal death rate in the United States has increased rather than decreased, so that the American rate for 1920 is the highest among all the nations for which recent statistics are available. With an annual loss of approximately 200,000 babies and 20,000 mothers, the need of extending on a national scale the successful local efforts to provide better care for mothers and infants was obviously necessary.

—THE NORTH AMERICAN REVIEW.

The Relation of Air to Health

ROBERT F. JONES

UNQUESTIONABLY from the standpoint of health, the most important of the three fundamentals for life—air, water, and food—is the surrounding air, although it is given little attention by the average person and even by many physicians. The evil effects of bad air in everyday life are not always apparent, but recent investigations lead us to believe that bad air has a marked effect on the body in its resistance to disease, particularly to the common cold, which probably causes more suffering and inconvenience than almost any other malady. Even though the final evil results of bad air are not attributed to it by many persons, most persons feel dull, sleepy, and generally uncomfortable in crowded, ill-ventilated rooms. On the other hand, all are wakeful and exhilarated and wish to be active when in outdoor air.

When your head begins to nod and your eyes to blink you believe that you are sleepy. But if you are in a warm, stuffy room, it probably isn't sleep that you need. It's fresh air. Dr. Jones, lieutenant commander in the Medical Corps of the United States Navy, explains the reason for the drowsiness; it is not the effect of the bad air on the lungs, but on the function of the skin.

Until comparatively recently, it was believed that this ill-feeling was due to some change in the chemical make-up of the air; but in recent years this hypothesis has been found to be incorrect. We know now that the physical properties of air have a far greater effect on the well-being of man than its chemical properties. In 1883, Hermann first pointed out that heat and moisture are probably responsible for the harmful effects of bad air rather than its chemical composition. Flügge, Hill, Haldane, Benedict, and many others have, since that time, demonstrated by experimentation that this is true. As concisely stated by Professor Lee of Columbia University, New York, the cause of the ordinary sensations of discomfort in a badly ventilated room are physical, not chemical; due to the functions of the skin, not of the lungs. As a result of this change of ideas concerning ventilation, a brief discussion of the modern views of ventilation should not be amiss. The data contained in this discussion were obtained from the most-up-to-date literature at hand, and many of the facts were corroborated about a year ago by experiments carried out by Lieutenant J. E. Henry, M. C., U. S. Navy, and myself at the United States Naval Medical School, Washington, D. C.

Modern Views of Ventilation

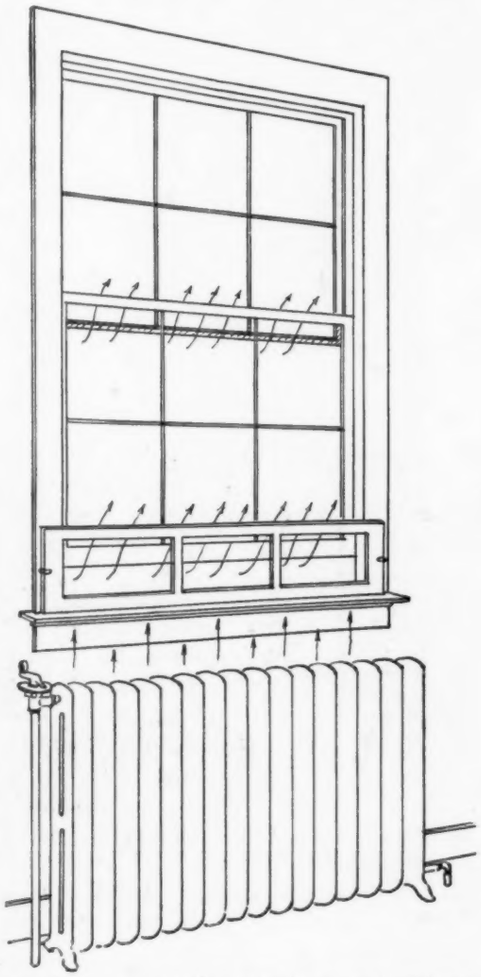
In the problem of supplying enough air and air pure enough for an occupied space the factors that must be taken into consideration are: (1) the physical properties, temperature, humidity, and movement of air, which control the cooling power of the air on the surface of the body; (2) the chemical constituents; and (3) changes from time to time in the physical properties mentioned. Inasmuch as the coolness or warmth of the atmosphere surrounding the body largely governs the physiologic function of heat elimination, the physical properties of air are of first importance. The chemical purity of the air is also an essential, but secondary. The importance of the third factor for man, changes in the physical properties of air, perhaps is not fully understood. Yet changes in these properties undoubtedly stimulate the human mechanism, giving tone to the vasomotor system, which controls the dilatation and contraction of the blood vessels and thereby affects the distribution of blood, exciting muscular activity, and thus assisting the glandular, respiratory, digestive, and circulatory organs in proper functioning.

Physical Properties of Air

The comparison of the human body to a furnace, which is often made, is in many ways an apt one. The ordinary furnace, however, is not kept at a constant temperature, and a variation of many degrees is usually unimportant, whereas the human body is a special furnace that must be maintained constantly at a temperature of about 98.6 F., and a variation of so little as 1.5 degrees from that temperature causes discomfort. Through centuries of hardships in the past the human body has been admirably trained to resist cold, but it has been shown that it can resist heat only to a limited extent. Therefore one of the biggest problems in the ventilation of houses, schools, and other buildings is the avoidance of overheating, which in reality is more injurious than moderate coolness of a room, except in the case of the very young, the very old, and invalids.

The Proper Temperature for Rooms

Through various physiologic processes the body is continuously giving off heat in order to keep itself at a standard temperature of about 98.6 F. Among the more important of these processes are the dilatation of the blood vessels in the skin so that a larger volume

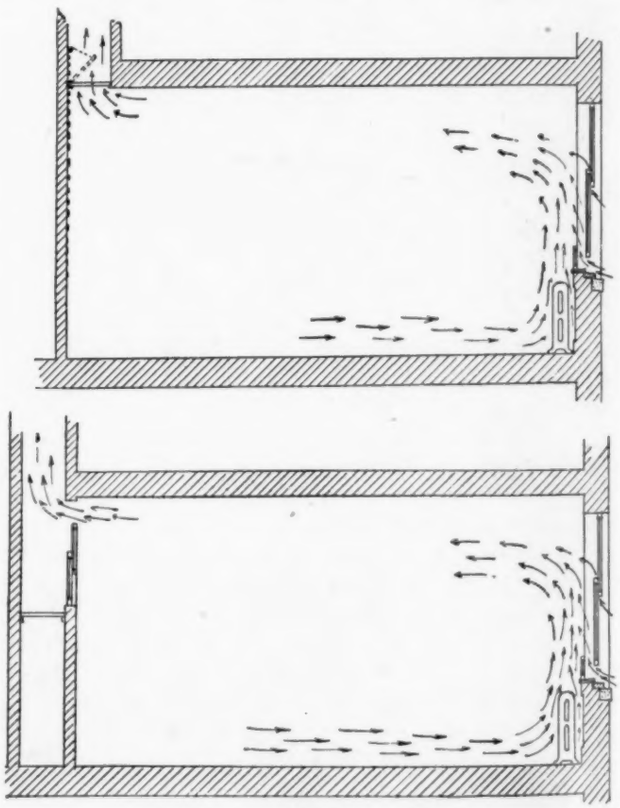


This arrangement of the window and radiator and the natural upward vacuum ventilation makes possible an ample supply of fresh air in all kinds of weather without discomfort.

(Courtesy of S. H. Wheeler Estate.)

of blood may be exposed to the cooling air about the body surface; the faster heart action, which may increase the rapidity of flow of the blood and consequently the amount that can get to the surface in a given time; and, finally, perspiration and evaporation. But the body, when necessary, may check to a degree the amount of heat that it will give off. The human body can also provide extra heat, when outside causes increase elimination, by increasing its intake of fuel. In addition, in our civilization, man successfully provides against too much loss of body heat by warm clothes and by artificially heating the air of his living apartments. In fact, since this is so often overdone, we have to deal with overheating in a consideration of ventilation more than with underheating. In general, then, the problem of ventilation is to surround the body with air of such physical properties that the loss of heat will be just sufficient to maintain a normal temperature without its being necessary for the automatic devices of the body to increase or decrease its elimination of heat.

If the physical conditions of the surrounding air are such that the heat is taken away from the body more rapidly or more slowly than is normal, the body protects itself by those means with which nature has provided it. If it does not readily succeed, these mechanisms have a heavier and heavier strain put on them, and if they finally fail the body suffers the consequences of a decreasing or increasing body temperature. The oppressive feeling, the drowsiness, and other discomforts of a person in a warm, close room are the result of too little cooling power of the air (a physical property), and not to increase in the carbon dioxide in the air (a chemical property). This was proved some years ago by Flügge, a German physiologist. He placed men in a closed cabinet where they breathed



In the upper illustration, air is shown escaping at an outlet in the ceiling, in the lower illustration, at an outlet near the ceiling. The escaping air slightly lowers the air pressure in the room, creating a tendency for air to enter the room at the open windows.

and rebreathed the air contained therein until they were very uncomfortable. He then introduced fresh air to them through tubes without changing the physical or chemical conditions of the air that surrounded their bodies.

They had no relief, although they were getting air which contained not more than 0.03 per cent. of carbon dioxide and about 21 per cent. of oxygen, approximately the amounts in outside atmosphere. Men outside the cabinet then breathed the air from within the cabinet through tubes while their bodies were surrounded by fresh outside air. They were not uncomfortable, although they were breathing the foul air of the cabinet, which contained an excess of carbon dioxide and other expired impurities as well as a decreased amount of oxygen. The excessive heat and humidity (physical changes in the air) that were generated in the cabinet by the bodies of the men were the causes of the discomfort and not an increase of carbon dioxide and other impurities, nor a decrease in oxygen (chemical changes in the air). As the heat and humidity in the compartment rose, the cooling power of the air, of course, grew less and less, until the body could no longer give off enough heat to keep itself at a temperature of 98.6 F. As a consequence, the body temperature began to rise and as it rose the discomfort became more and more marked. Men outside, not in contact with this heat and humidity, did not have a rise in the body temperatures and were therefore entirely comfortable, although they breathed the cabinet air.

Proper Amount of Moisture

It is evident that our aim in the ventilation of houses should be to maintain the proper movement of air, the proper amount of moisture, and the proper temperature with proper variations.

The United States Weather Bureau reports the relative humidity of the air at various parts of the country each day, and as a result we generally think of the "dampness" of the air in terms of relative humidity. In considering the problem of good air in schools, homes, and other buildings it is best to think of humidity in terms of grains of moisture contained in each cubic foot of air rather than as relative humidity. For example, air of 25 per cent. relative humidity at a temperature of 55 F. dries the skin and mucous membranes in an unpleasant manner; but if this air is raised to 85 F. it has an agreeable effect on the skin and mucous membranes. The explanation of this is that at 55 F. air when fully saturated can hold only 5 grains of moisture to the cubic foot; at 25 per cent. relative humidity, then, it would contain only 1.25 grains of moisture to the cubic foot of air, which is too dry for the skin and mucous membranes. At 85 F. the air can hold about 12.5 grains of moisture to the cubic foot; so that at 25 per cent relative humidity it would contain more than 3.1 grains to the cubic foot.

It is readily apparent that if all these factors contribute to the cooling power of the air, and if this is of such prime importance in ventilation, an instrument that could register cooling power would be of immense value. It would indicate the effects of many causes—some of which, such as air movement, are not readily measured—in one figure. Such an instrument has been devised by Dr. Leonard Hill of London and is known as the katathermometer. Hundreds of observations with it have convinced me of its great value, practicability, and accuracy; but it is doubtful whether it will prove of value to other than special investigators in this line of work. Its inventor has introduced another instrument for the same purpose, but adapted more particularly for popular use. This he calls the comfimeter. I have made many observations with the comfimeter, but until this instrument is perfected I do not believe it should be adopted for general use.

It isn't sleep she needs, but fresh air.

Chemical Constituents of Air

In the past, physiologists and sanitarians believed that the bad effects of close, ill-ventilated rooms were due to an increase in carbon dioxide and a decrease in oxygen. This was a plausible theory. Acting on it, sanitarians set a standard of so many parts of carbon dioxide to ten thousand as a maximum, and required sufficient air turnover to keep it at or below that figure. By doing this they overcame the discomforts due to poor ventilation, for they were getting rid of other conditions at the same time they removed the carbon dioxide.

Evil Effects of Impure Air on Body Are Physical

The experiments of Flügge and others definitely proved that the harmful effects were not due to the carbon dioxide or other impurities, but to the physical effects of air on the

surface of the body. Many clung to the idea that emanations from the body were responsible for some of the ill effects, but no acceptable proof of this has ever been offered. Of course, in mines, submarines, and other occupied closed compartments, carbon dioxide soon reaches dangerous concentrations and the oxygen is reduced very rapidly unless provision is made for purifying the air. Body odors —for esthetic reasons, if for no others—are not tolerated in any good system of ventilation. But ordinarily, if air is obtained from a good source and is free from gases, smoke, and dust, we do not have to concern ourselves with its chemical composition. If the air is pure at the source, the turnover necessary to take care of the physical properties prevents any serious chemical impurities. In fact, long before any acquired impurities could have any effect, conditions would have become intolerable from other causes.

Keep the Windows Open

When all has been said and done about ventilation, nothing is better or healthier than keeping the windows open, which permits of the best range of variability. A hothouse plant, grown in excessive warmth and humidity, is fragile and delicate, full of sap and lacking in fiber. Yet, if the temperature, humidity, and air movements are constantly varied without marked extremes, a much more hardy and virile plant can be raised, even in a hothouse. Monotony dulls and weakens, whereas variety stimulates and freshens. The changes in the physical properties of the air stimulate all the bodily functions to greater activity, the circulation is quickened, waste products are burned and removed more rapidly, muscular activity is increased, and every gland and organ in the body is made more healthy and active.

Plants Poisonous to Man

THEODORE TIEKEN

THE family of plants that furnishes the lowly "Irish potato," the *Solanaceae*, is not without its miscreant members as far as man is concerned. It includes a number of poisonous plants. Most important are the jimson weed, belladonna, henbane, and woody nightshade. Even tobacco and tomato, also belonging to this family, and potato have at times been the cause of poisoning. All of these plants contain chemical substances that must be used with caution even by physicians, because certain persons are extremely susceptible to their action, that is, they have disagreeable symptoms on eating them, or on coming in contact with them.

The plants that are poisonous by contact were discussed by Dr. Tieken in a paper in HYGEIA *for August. In this paper are considered the plants that are poisonous when taken internally. The symptoms and consequences in many cases are so serious that early treatment is necessary if the victim's life is to be saved. Until a physician can be secured, or if one is not available, some first aid measures should be carried out. These measures are described in this paper.*

Jimson Weed

Jimson weed, because it is found almost everywhere, is the most frequent cause of trouble. Children particularly, through their curiosity or ignorance, may eat the seeds or pick the lovely purple or white flowers and suck the sweetish nectar. Four children while playing "Indian" chewed the stems and leaves of the jimson weed; they were made very sick, but fortunately through the prompt action of their mother in emptying the stomach all recovered.

Jimson weed, also known as Jamestown lily, thornapple, apple of Peru, devil's apple, devil's trumpet, stinkweed, and white man's plant, is called by the botanists *Datura stramonium*. It is a rank, ill smelling plant noticeable for its white funnel shaped flowers. Its leaves are large and soft, with deep notches and heavy ribbed veins. The plant grows from two to five feet tall and spreads far with its branching stems and large leaves. The flowers appear from May to September; the fruit ripens from the last of August to October, depending on the locality. The small black seeds are wrinkled and shaped somewhat like a kidney.

The smaller jimson weed is called *Datura tatula*. It grows chiefly in the southern part of the United States and is known as the purple stramonium, or the common thornapple. This plant has purplish stems and leaf stems, and the leaves, which are mostly smaller than those of *Datura stramonium*, have purplish midribs. The flowers are bluish

or violet white. The seeds are also slightly smaller than those of the larger stramonium, but otherwise they are similar in appearance.

Belladonna

Belladonna, the deadly nightshade, common nightshade, daft berry, or black cherry, is known to the scientist as *Atropa belladonna.*

Jimson weed is probably the most frequent cause of poisoning of the various members of the potato family.
(From Halsted. Courtesy of New Jersey Agricultural Experiment Stations.)

The name suggests the origin of the atropin often dropped in weak solution into the eyes to make the pupils dilate before they are to be tested. The lovely blue black berries of belladonna are so attractive to children that there is always danger of their being eaten. Fortunately, the effects are rarely fatal. The plant is a common weed that grows best in rich moist soil. It is found throughout the United States east of the Dakotas and Arkansas and in the northern part of the Pacific coast region. The large stem is from one to two feet high, with rough, wide-spreading branching stems. The leaves are from two to four inches long and one and one-half inches broad, with wavy margins. The small drooping cluster of white flowers and the black globe-like juicy berries that ripen from July to September make its identification easy.

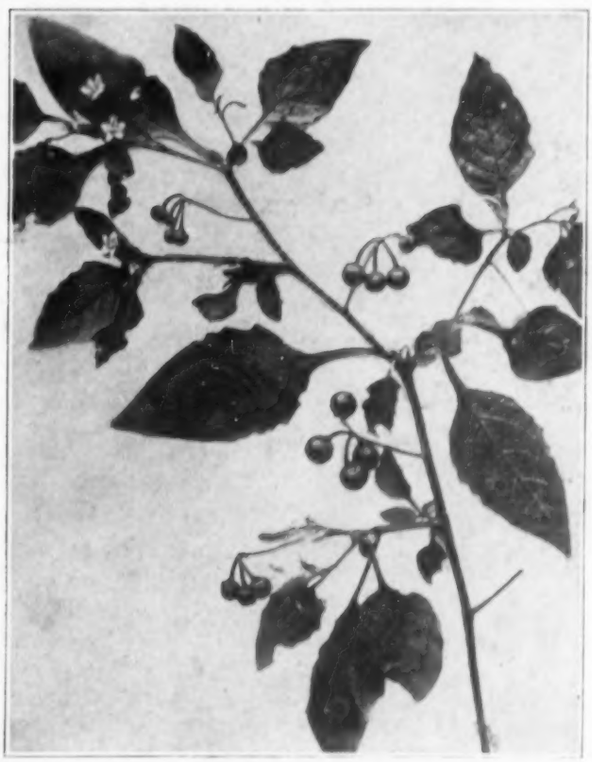
Black Nightshade, Bittersweet, Henbane, and Tobacco

The black nightshade (*Solanum nigrum*) grows in shady, rich ground. The clusters of white flowers are followed by black round berries. All parts of the plant contain the poison solanine, but usually in small quantities, so that serious cases of poisoning from eating parts of the plants or berries are rare.

Bittersweet, the woody nightshade (*Solanum dulcamara*), and henbane (*Hyoscyamus niger*) do not cause poisoning unless they are taken in excess as a medicine. The symptoms of poisoning due to the first smoke or chew of tobacco (*Nicotiana tabacum*), are all too familiar to need further comment. Tobacco has also caused symptoms of poisoning when used as a poultice, or in an injection to rid the patient of worms, a method now seldom used.

Potato

The common potato, whose Latin name is *Solanum tuberosum,* may cause serious symptoms when eaten during the sprouting season or when immature. The sprouts and the peeling contain a poison called solanine, but this is probably not responsible for all of the reported cases of poisoning from potato. According to recent investigations many of



The black nightshade also belongs to the poisonous group of plants of the potato family.
(From Halsted. Courtesy of New Jersey Agricultural Experiment Stations.)

the reported cases were due to bacteria that developed in the potato after it was cooked.

The symptoms of poisoning by members of the *Solanaceae,* excepting tobacco, are almost identical because the poisons of all are closely related chemically and have similar action. The person affected complains of dizziness

and dryness of the mouth and throat. The pupils of his eyes dilate, and the muscles of the eyes become paralyzed and interfere with his sight. The skin may be dry and burning and covered by a red rash. The patient feels as if he must urinate, but he cannot. In severe cases delirium develops, and sometimes convulsions. Fortunately, few persons get enough of the poison to cause death.

As much of the poisonous material as possible should be removed at once by emptying the stomach. This may be done by carefully putting the finger into the throat in order to cause vomiting, by tickling the throat with a feather, or by drinking two or three teaspoonfuls of mustard water (a teaspoonful of ground mustard to a pint of warm water).

This photograph of growing water hemlock gives an idea of the appearance of the poisonous hemlocks.

If a physician is available, he should be called at once because the giving of the proper antidote in such cases is of vital importance. Washing out the stomach with a mild solution of iodine, which prevents the poison from spreading through the body, can be done only by a physician or trained nurse. The chances of recovery from the poisons of the nightshade family are good if prompt and efficient treatment is given.

The Hemlock Group

The second important group of plants poisonous to man and animals are the hemlocks. Three species commonly found are the water hemlock, the Oregon hemlock, and the poison hemlock.

Water Hemlock

The water hemlock (*Cicuta maculata*) is also called wild hemlock, spotted hemlock, spotted parsley, snakeweed, beaver poison, cowbane, death of man, muskrat weed, and musquash root. It is a perennial with many stiff smooth branches from three to eight feet tall; at their joints rigid hollow stems branch out, from which droop the finely dissected leaves. The ribs of the leaves are deep and regular. The tiny white flowers grow in clusters that are gathered by fine smooth stems into larger umbrella-like clusters. The water hemlock grows in swamps and in the moist lands of the Atlantic and middlewestern states as far as the Rocky Mountains. The two poisons, cicutoxin and cicutine, in the oily, aromatic fluid, chiefly in the roots, and in the stem, leaves, and seeds, are among the most dangerous vegetable poisons. The roots are responsible for most cases of poisoning, as children and careless adults mistake them for parsnips, horseradish, Jerusalem artichokes, sweet cicely, and other edible roots. The plant is also poisonous to cattle and sheep.

The symptoms come on suddenly and the victim may die within an hour. In four cases seen by a physician, death occurred within three hours. Sometimes the first symptom is dizziness, then violent vomiting, cold, clammy skin, profuse perspiration, slow, weak pulse, unconsciousness, and finally violent convulsions, much like those of epilepsy. Usually the pupils are widely dilated and the jaw firmly set.

Recovery depends entirely upon prompt treatment, emptying the stomach and bowels and combating the pain and convulsions with suitable medicines administered by a physician. There is no known antidote for these poisons.

Oregon Hemlock

The Oregon hemlock (*Cicuta vagans*) is quite similar in appearance to the water hemlock (*C. maculata*), but the root has two very distinct characteristics. The lower part of the upright root stalk, which is from one to six inches long and one to two inches thick, is divided into numerous horizontal chambers that contain the poisonous aromatic oil. Besides the fleshy spindle-shaped roots growing downward, solid fibrous roots run along just beneath the surface of the soil.

The symptoms and treatment of poisoning by the Oregon hemlock are the same as those

mentioned in the discussion of the water hemlock.

Poison Hemlock

The poison hemlock, known popularly also as wild hemlock, spotted parsley, stinkweed, poison snakeweed, wode whistle, and St. Bennett's herb, scientifically is *Conium maculata*. Its hollow stems are from two to seven feet tall, with large parsley-like leaves. Showy clusters of small white flowers appear in July and August. The seed is prominently ridged and has a deep, narrow groove running lengthwise on its inner surface. The fresh leaves have an extremely sickening taste and when bruised or dried, a mouse-like odor. This plant grows extensively in the waste lands and on roadsides from New England to the Rocky Mountains.

The roots of the water hemlock are responsible for most cases of poisoning, as children and careless adults mistake them for parsnips, horseradish, Jerusalem artichokes, sweet cicely, and other edible roots.

(From Halsted. Courtesy of New Jersey Agricultural Experiment Stations.)

The poisonous property is due to the liquid poison coniine that is found most abundantly in the leaves at flowering time, and in the seeds. The roots are harmless in the early spring, but during the summer and autumn become very poisonous. This is the plant used by the old Greeks to kill their prisoners, and the one that killed the good old philosopher Socrates. Poisoning is usually caused by mistaking the hemlock seeds for those of anise and the leaves for those of parsley. The roots have been mistaken for parsnips and horseradish. One person who blew a whistle made of the stem is known to have been poisoned. Unquestionably more cases of poisoning from hemlock occur than are recorded in literature. Ten cases of poisoning with two deaths are known to have occurred in New Jersey in one year, and four cases with three deaths in Montana.

The symptoms of poisoning develop quickly. As a rule the patient becomes extremely weak, his skin cold and clammy, and he sees double through drooping eyelids. Later it is hard for him to breathe, and his heart beats fast and weak. Finally he sinks into collapse.

In order to save the victim of hemlock poisoning, the stomach must be emptied by vomiting or by use of the stomach tube—the sooner, the better chance he has. The body should be kept warm, by hot pads, hot-water bottles, or whatever is to be had. The lower bowel should be flushed by injections of hot water and baking soda. Stimulants for the heart and breathing should be given, but only by a physician. No specific antidotes are known. Many of the victims die.

The poison hemlock is also known as wild hemlock, spotted parsley, stinkweed, and poison snakeweed. Poisoning is usually caused by mistaking the hemlock seeds for those of anise and the leaves for those of parsley. The roots have been mistaken for parsnips and horseradish.

(From Halsted. Courtesy of New Jersey Agricultural Experiment Stations.)

The Crowfoot Family

In the crowfoot family, *Ranunculaceae*, are two species of aconite, both of which are poisonous. As the symptoms of poisoning are

the same, only the more common and cultivated aconite is here described.

Aconite

Monk's hood, friar's cap, iron hot, wolf's bane, storm hot, and blue weed are the local names for *Aconitum napellus*. It is a beautiful, erect plant of a single stem from two to six feet tall with glossy, toothed leaves at the base and a long cluster of beautiful bluish flowers above. The root is shaped like an irregular cone, from two to four inches long. When the root is cut across, it shows a characteristic seven rayed star, with from five to seven small hollow bundles. It is free from odor, has a sweetish, acrid taste, and produces almost immediate tingling and numbness of the tongue. Aconite grows wild throughout the western and central parts of the United States, and is cultivated in parks and gardens because of its beauty. The wild plants are more poisonous than the cultivated. Most of the cases of poisoning reported have been from eating the root, which often has been mistaken for horseradish; the leaves have been mistaken for parsley. All parts of the plant contain the poison aconitine, which is one of the most deadly of all known vegetable poisons, and is one of the four most dangerous of all poisons known. Only ricin and the toxins from the germs of lockjaw and of glanders are stronger. One thirty-second of a grain has caused death.

The lovely blue black berries of belladonna are so attractive to children that there is always danger of their being eaten.

(From Kraemer.)

The symptoms are very characteristic. A tingling numbness of the tongue develops soon after the root or leaves are eaten. Soon the throat feels constricted, breathing is slowed, and the entire body becomes numb. Saliva flows freely, but the patient is unable to swallow; he is nauseated, but cannot vomit. Pain in the eyes and head becomes severe; the pulse slow, feeble, and irregular; the face cold and bloodless, and the patient prostrated, without losing consciousness. If a considerable amount of the plant has been eaten, death is almost certain to follow within a short time. Mallet, in a series of six fatal cases, reported that one patient died after eight minutes, and another not until four days later.

It is vital that the stomach be emptied at once; a physician or trained nurse should do this with a stomach tube, but if a physician is not available the patient should be caused to vomit, by such means as sticking the finger down the throat, or tickling the throat. Tannic acid and powdered charcoal are given to prevent the poison from spreading through the tissues of the stomach into the rest of the body.

Wild Cherry

The fruit of the wild black cherry (*Prunus serotina*) is not poisonous, but the kernel contains a substance that in the stomach forms hydrocyanic, or prussic, acid, a very strong poison. A few instances are reported in which children cracked the seeds, ate the kernels, and became ill. No deaths have been recorded.

The stomach should be emptied and the lower bowel washed out by an injection, but the drastic treatment demanded for most of the cases of poisoning mentioned is not necessary.

Castor Oil Plant

Ricin is an exceedingly poisonous substance contained in the seeds of the castor oil plant, *Ricinus communis*. The oil is expressed from the seeds, but no poisonous substances enter into its composition; the seeds, however, cause symptoms of poisoning soon after being eaten. The eating of two seeds has been known to produce death in a child.

I have seen three cases in children who picked the fruits and ate the seeds they contain. They suffered from dizziness, headache, weakness, nausea, vomiting, profuse diarrhea,

Aconite contains one of the most deadly of all known vegetable poisons, aconitine. The single stem of this plant grows from two to six feet tall, with glossy tooth shaped leaves, and above a long cluster of beautiful bluish flowers. This photograph was taken in the early summer before the flowers appear.

and severe pain in the abdomen. Usually after a few days recovery is complete.

Oxalis

Recently cases of alleged ptomain poisoning were investigated by the New York Board of Health, and found to be caused by the eating of sour grass soup. This soup had been prepared from the leaves and stems of a species of sorrel that was found to contain a large quantity of oxalic acid (as much as ten grains to one pint in some cases). Sour grass, *Oxalis acetosella*, is one of the common weeds in our northern forests and is usually considered harmless. It is well to remember that it may become troublesome if taken in excess.

Soon after eating the sour grass, pains develop in the stomach with nausea and vomiting, and early collapse, with a tendency to stupor.

The stomach should be emptied at once by vomiting, if possible; if there is a doctor or nurse at hand, by washing it out with lime water or a solution of baking soda. Such drinks as flaxseed tea and milk or gruels may be given. Heat should be applied to the body and the patient should have absolute rest in bed. If patients are treated early they are likely to recover.

Snakeroot

Recent experiments conducted at the North Carolina Experiment Station seem to prove

The fruit of the wild black cherry is not poisonous, but the kernel contains a substance that forms prussic acid in the stomach, a very strong poison.
(From Kraemer.)

definitely that white snakeroot is sometimes the cause of "trembles" in cattle, and indirectly an important factor in causing "milk sickness" in man.

Poisonous white snakeroot, Indian sanicle, or pool root, (*Eupatorium ageratoides*) grows chiefly in the rocky or sandy woodlands of the eastern and central states, especially in Ohio, Indiana, and Illinois. It rarely grows in the

The false hellebore has been responsible for a number of cases of poisoning.
(From Halsted. Courtesy of New Jersey Agricultural Experiment Stations.)

open meadows, but frequently is found on the border of woods. Its stem is weak, slender, and smooth, and has wide branches. The leaves are slender, from three to five inches long, with toothed margins and three prominent veins. The flowers are beautiful snow white, in clusters of from twenty to thirty. The poisons are found in the volatile oil and resinous substance. The plant also contains another poison, not yet identified.

Symptoms develop slowly in man after taking the milk of a sick animal. First he is nauseated and obstinately constipated, then he suffers violent attacks of vomiting, loss of appetite, and "tremblyness." A fetid odor is noted about the patient, and a heavy acid odor to the breath. Later delirium appears without fever. The patient rapidly loses weight and is correspondingly weak, so that he is confined to bed.

Treatment for "trembles" has not been satisfactory thus far. The use of milk from a "trembly cow" should be stopped at once. Sweating of the patient should be induced and free evacuations of the bowels encouraged. Recovery is the rule, but convalescence is slow.

Miscellaneous Plants

Many other plants contain poisonous substances, but since the plants are not taken as food there is little risk of their being mistaken for edibles. The false hellebore has been mistaken for marsh marigold, the fruit of the Kentucky coffee tree for that of the honey locust, and the mountain laurel for winter green; even daffodil buds have been used for food. It must be remembered, however, that plants and fruits of plants may cause in sensitive persons symptoms of poisoning, for example, hives from strawberries, asthmatic attacks from wheat, and hay fever and asthma from the pollens of ragweed and other plants. But these plants cannot be classed as poisonous, because the trouble is with the hypersensitive individual and not the nature of the plants.

HEALTH WEEK AMONG NEGROES

A National Negro Health Week, under the auspices of various health organizations, including the United States Public Health Service, was recently celebrated in the United States. Statistics seem to indicate that American negroes are not necessarily short-lived nor especially liable to disease, and that their death rate, which is rapidly decreasing, is largely due to their comparative poverty. Better hygienic conditions would reduce the rate of both sickness and death.

The Health Week began on Sunday with health sermons and lectures, explaining the purpose of health week and urging cooperation with health organizations, especially stressing mother and infant welfare work. Monday was hygiene day, when personal and community hygiene was discussed and social hygiene education and venereal disease control considered. Tuesday was "swat the fly" day on which the spread of disease by insects and the advantages of screening were explained. Wednesday was tuberculosis day, when fresh attention was called to the fact that the disease is not hereditary, and that treatment should be begun early. Thursday was children's day and was given over to stories of health crusades and cleaning up measures, parents being invited to attend. Friday was devoted to cleaning up churches and the grounds of public buildings. Saturday was a general clean-up day.

—The World's Health.

When the Doctor Orders Eggs, Green Vegetables, and Cereals

ALICE IRWIN

"HOW would you like your eggs? Boiled or fried?" That marks the limit of ways in which to cook eggs in many homes. Yet there is a book called "Five Hundred Ways with Eggs," and in another cook book more than three hundred recipes are found.

Eggs

Dietitians are agreed that the best ways to boil eggs are these:

Soft boiled: Put eggs into a bowl or pan, add boiling water until the eggs are covered about one inch, cover with lid, and let them stand for from eight to ten minutes.

Hard boiled: Put eggs into the top part of a double boiler. Add boiling water until the eggs are covered about one inch. Cover with lid, and place them over the hot water in the lower part of the boiler, put on the back of the stove or over a simmering burner and let stand thirty minutes.

Easy? No trick at all. And yet the soft boiled eggs have reached just the right stage of coagulation of white and yolk, and the hard boiled eggs are evenly cooked all the way through.

And omelets? They are not half so hard to cook as the inexperienced housekeeper imagines. The secret lies in cooking them slowly until the bottom is brown and then putting them into the oven or under the broiler so the top can finish cooking.

Scrambled eggs and poached eggs: If milk or cream is used in poaching eggs instead of water they have a much better flavor. The Boston Cooking School Cook Book—which is commonly accepted as a standard—devotes fourteen pages to recipes for cooking eggs—the luncheon dish par excellence for sick folk and well.

Vegetables

How about vegetables? The city market affords an abundance of fresh vegetables the year around. Even in the late winter months there are all sorts of delightful fresh things available for salads—leaf and head lettuce, water cress and romaine, tomatoes and cucumbers for those who can to pay the price; plenty of celery, cabbage, and green peppers.

For the cooked vegetables—the simpler the ways in which they are cooked and served, the better. And for those vegetables which are to be cooked in boiling water, salted or not as the taste may dictate, the general rule is that the less water used the more delightful the flavor will be. The careless cook drops her prepared vegetables into a large quantity of boiling water and frees her mind from worry about burning—but loses almost all flavor. The French are noted for their economical use of water. In the cooking of vegetables this economy is to be commended.

The dietitian in the hospital easily meets the problem of special diets and can arrange trays that have sufficient variety to tempt the appetite of the patient. But what when the patient leaves the hospital, or if he is not sick enough to go there? Then the housekeeper has to wrestle with the menu. Miss Irwin makes some suggestions that should reduce the problem for the person who plans and prepares the meals.

The housewife who is struggling with the problem of providing a vegetable diet which affords variety and flavor will do well to invest one cent in a post card. A request to the United States Department of Agriculture will bring her Farmers' Bulletin 256, "The Preparation of Vegetables for the Table" by Maria Parloa, which will be of invaluable assistance to her.

Cereals

As for cereals. Go into any grocer's shop and see how many cereals he has attractively boxed on his shelves. A recent count in a city store recorded twenty-four. And yet some people have oatmeal every morning the year round! With most packages of cereals come reliable recipes for the cooking of the particular cereal. It is scarcely possible to give a general direction which will cover all kinds since the preheating process varies so greatly with different manufacturers. Last winter in a large city grocery and in a small local grocery bulk oatmeal was selling at a higher price than two standard brands of package oatmeal, and much has already been said about the sanitary advantages of package goods.

So when the doctor orders eggs and vegetables and cereals, the patient is by no means on a starvation diet. He probably will be allowed fruits as well, and he can have three good meals a day seven days a week.

The Canoe Trail to Health

EARL CHRISTMAS

SO ACCUSTOMED are we to living in cities that we overlook many of the joys of life in the outdoors. To an increasing number, outdoor recreation means sitting in an automobile and watching the somewhat blurred scenery flit past. Getting the fresh air is good, but when I see a procession of automobiles racing along a country road I am reminded of a remark I heard an old Indian make the first time he saw an automobile. After he got over his momentary astonishment, he just grunted and said, "Ugh, too easy!"

As a means of travel and healthful diversion, the birch bark canoe of the red man is not to be despised. Those who have spent much time in outdoor activities, particularly in the north, know the advantages of the canoe, but to most persons it is an undiscovered mode of travel and recreation.

If more people knew of the delights and the profit that come to the canoeist, canoeing would be extended rapidly, I am sure. Canoeing isn't just exercise. One has to be careful about that word "exercise." It scares many away—sounds too much like work. Canoeing is a sport, one of those in which the game is the thing, and the exercise is acquired without knowing it.

Remember the old woodshed? Chopping wood was excellent exercise, but did we always like to chop? On the other hand, did any boy ever complain about how hard he had to work in the back lot ball game? Why the energy, the health-building play put into that game would have chopped all the wood in a jiffy.

A mist low over the lake when the birds first call one from sleep; bacon and eggs in the shade after the morning's long paddle; the shadow of flickering leaves on the afternoon waters; the glory of rhythmic motion, of a body tired by bending against the breeze and by portage across the leaf-bedded forest; the glow of the camp fire in the blackness of night; the hoot of the owl and the peaceful song of the frogs as the ripples whisper their way to the shore—these are the joys of the canoeman.

Now we grown-ups are just like the boys. We need to think we are playing. And for this purpose the canoe opens up one of the most interesting possibilities imaginable. Take a canoe and go on a trip as you would set out on a new adventure, and you will find in it fun, invigorating exercise, and a new avenue of healthful outdoor activity.

A canoe is not hard to handle, despite any such impression that may be prevalent Certainly it is much easier to handle than the more familiar small rowboat commonly used.

Photo by U. S. Forest Service

The endless chains of lakes make the Superior National Forest and the country along the northern international boundary a region of wilderness made to order for the canoeist.

Brown's Studio

There is exercise of every kind if the canoeist has a few portages to make.

The lighter built and trim canoe glides through the water with the expenditure of much less effort. By following a few simple instructions and observing reasonable care, the amateur soon learns to paddle a canoe and handle it with safety. You don't have to be an expert to get plenty of enjoyment out of the sport.

Paddling a canoe is one of the best of exercises. It brings into play the muscles of the arm and shoulder, particularly, and the muscles of the upper part of the body. Most persons who follow sedentary occupations use these muscles very little, since walking is their chief form of exercise. On a canoe trip, especially if you have a few portages, you will use every muscle of the body, and the muscles on each side of the body in equal degree. Moreover, you can make the exercise as vigorous or as moderate as you wish. That is one of the great advantages of canoeing. You can avoid the overexertion you are liable to experience in swimming, tennis, or some other sports to which you are not accustomed. Moderate exercise is always the best.

You can paddle a canoe along as slowly as you wish and with the minimum of effort. I have known girls unaccustomed to paddling or to any considerable exercise to paddle a canoe on quite long trips without experiencing even sore muscles. Especially if you are going down stream, it becomes an easy task to adjust paddling to your physical fitness or strength.

Photo by U. S. Forest Service

After a day's paddle a camp on the shore of the lake—and such an appetite as no man ever developed within a city!

Photo by U. S. Forest Service

The canoe can take you into the very depths of nature. An automobile could not take you to a spot like this.

On a canoe trip, you see the country from a new perspective, one that offers a refreshing relief from the monotony of city streets and dusty roads. Every Sunday the highways near any large city are literally filled with automobiles loaded with people out to see the country and get a little fresh air. It has come to the point where many motorists hesitate to take their cars out for a drive on Sunday or a holiday. The extent of this weekly migration to the country shows how great is the desire of city folks to get a change of scenery and a bit of outdoor recreation.

But I wonder sometimes how much these people really see. In many cases, I am sure it is not much. Roads generally are laid out in accordance with certain definite section lines and considerations of utility rather than scenic or recreational attractions. But when you take a canoe trip down a stream or along a chain of lakes, you get a new glimpse of nature. You go through the center of the real country instead of skirting along the edges, which usually have been seared by too much of civilization. Most natural attractions are associated with streams and lakes and the woods to be found along them. The canoe takes you into the very heart of nature. You see something new, and you come back with freshened outlook and new physical vigor.

Always for the canoeist there is the zest of discovery. He goes exploring down a winding stream. What's around the curve? He paddles on, and there's another curve, and new mysteries ahead. If you have anything of the spirit of the adventurer or explorer in you, you easily may become an enthusiast on the subject of canoe trips.

One trip down the St. Croix river should be enough to convert any skeptic. The St. Croix, running down through high stone bluffs and wooded hills on the Minnesota-Wisconsin border, is one of the most beautiful in all the country. Part way on its journey to the Mississippi little side channels separate from the main current, and these little streams wind in and out through the valley. Branches of the trees on the banks touch overhead in many places, and for many miles you can drift along under this leafy bower before coming back to the broad expanse of the main channel.

I defy anyone to make that trip in a canoe and not want to make another. Those who travel along the roads never see the river's beauties, and I doubt if they ever enjoy a hearty meal quite so much as the canoeist when he pitches his camp on the bank.

If you never have had a trip like that, try it. You don't have to come to the St. Croix. The chances are there is a stream right in your own region that will provide unsuspected delights and many days of healthful, invigorating paddling. Once you become initiated, you will find yourself seeking the wilder places for more pretentious canoe trips on your vacations. You may then turn to the Superior National Forest in northern Minnesota and the country along the northern international boundary. As a canoeist's country, this region is unrivaled. It is about the last bit of unspoiled wilderness, where the canoe is the only means of travel. There you can paddle on for days and weeks, going from lake to lake, rarely by a long portage, and never pass the same spot twice. You can spend months in the chains of lakes and the forests of the boundary country, and hardly ever see the habitation of a white man. There are easy trips or difficult trips with plenty of rapids, the "white water," to try the mettle of the more venturesome canoeist.

The country across the border in Canada, a large tract of which has been set aside as Quetico Provincial Park, is of much the same character. There are fine haunts for the canoeist in many other parts of Canada and in the lake country in the northern part of the United States from Minnesota and Wisconsin east.

But there are so many places I cannot attempt to name them here. Along most of our streams, there is opportunity for splendid trips, perhaps a trip of a day, perhaps one of a week or two weeks. Quite a number of

persons have made trips down the Mississippi, some of them from its source to the Gulf.

A canoe is easily transported to the scene of your trip. A small two-wheeled trailer can be used behind an automobile, or the canoe usually can be shipped inexpensively by railroad. If there is a good stream for canoeing running through your town, you will need to transport your canoe only one way, or if you are energetic enough you may avoid it altogether and paddle up stream and down stream. In communities where there is much canoeing, a canoe can be rented for a small sum.

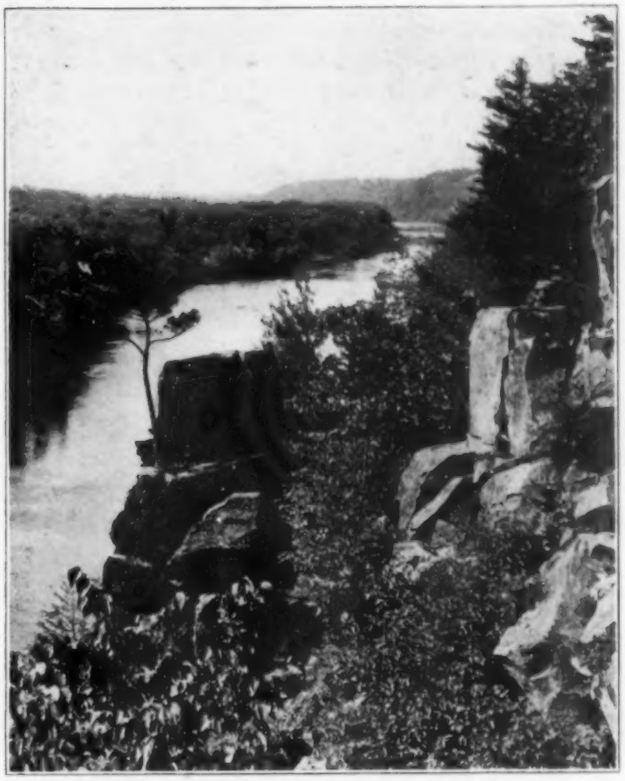
Equipment for your trip will depend on whether you are taking a day's trip or a long trip, and whether you are to camp out or stop at night at hotels along your route. If you are not familiar with conditions in the country through which you are to pass, it is best to inquire in advance from persons on the ground about outfitting.

In many communities good canoe trips of a day or less may be taken simply by renting a canoe. Many persons find great enjoyment in short trips. I have seen canoe races and contests that as a sport were really notable exhibitions.

The amateur canoeist, in order to avoid danger, must first learn to balance himself properly in the canoe. If he sits in the center and is careful to keep that balance, he soon will come to feel that his body is almost a part of the canoe and unconsciously will adjust his position and motion to it. The Indian who lives along the northern lakes is as much at home in a canoe as on dry land, and, needless to say, he never is the victim of a canoe's turning over. The Indian usually kneels in the bottom of his canoe. This puts the weight lower than in the usual commercial canoe in which the seats are close to the top, and of course in this position tipping is less likely. Most persons do not care to emulate the Indian in this respect, however, but prefer to use cane seats. Experienced canoeists, though, do sometimes drop to the bottom of the canoe when the water is rough or they are going over rapids.

Wind causes a considerable number of the accidents that occur with the canoe. Beginners should be especially careful about venturing too far from shore when the water is rough or a heavy wind is likely to arise. Novices caught out in the middle of a lake by a heavy wind have become excited and allowed the canoe to capsize, whereas experienced canoeists are able to weather some pretty rough water by quartering or riding with the waves.

In any event, the beginner will do well to seek the assistance of an experienced canoeist on his first attempts. Shooting the rapids of



The St. Croix river on the Minnesota-Wisconsin border holds treasures of beauty for the drifting canoeist.

streams affords one of the thrills of canoeing, but that is one of the advanced stages of the sport to be left to the experienced.

The knack of paddling a canoe is not difficult to acquire, especially with a little advice from one who is familiar with it. A common fault of the beginner is the attempt to take too long a stroke. He reaches out too far and carries his paddle back too far. If you stop to think about it, it is easy to see that this practice is wasteful. When a man brings his paddle back too far past his body, the paddle really is pulling up on the water, whereas the greatest propulsive force always is exerted when the paddle is perpendicular to the water. Experienced canoeists in the north woods use a much shorter stroke than the average city canoeist. With certain faults corrected, an effective stroke is easy to acquire with a little practice. The art of guiding the canoe is easily learned also. Inclining the canoe toward the side on which the beginner is paddling is the first difficulty he encounters in this line, but he soon acquires the twist by which he gives a little outward thrust against the water at the end of his stroke.

The two paddlers in a canoe should make their stroke at the same time in order to obtain the best result. If one tires a bit paddling on one side, the two should change by shifting paddles to the other side. This affords relief, and, what is more important,

gives the same exercise to both sides of the body.

Canoeing is not confined to a short season. It is a delight in the spring when the leaves are coming out, and during the summer days when streams are shady; but September and October, when the air is cooler and the river banks are colored with the yellow, green, and red of autumn, are perhaps the best months for canoeing.

Uncle Sam on the Lookout for Disease

A. N. MIRZAOFF

DESTINATION—Hollywood, California," read the tickets of sixteen camels that humped through the streets of Hanover, Germany, ready for embarkation to the land of stardom. They had come all the way from Bagdad, through the Caucasus and across Russia without molestation, and were now ready to board ship for the United States.

Then their tragedy began. Uncle Sam's inspectors came forward and asked the owners for health certificates for these would-be emigrants. A batch of papers was produced, showing that the caravan had been legally obtained, that they were booked as actors, and that they were to play an important rôle in an oriental film setting in Hollywood. But health certificates they had none.

The inspector looked at the group.

Does it seem a far way from excluding camels from the United States to the protection of its citizens from disease? It isn't, since the camels may have parasites that would be very glad to transfer themselves to some of our domestic animals; and some of the parasites of animals do not scruple to infest man if he is conveniently located.

"Well," he said, "those camels are sick; they must see the doctor, just as every other emigrant has to."

But to find a camel doctor? The authorities knew of no such doctor in Hanover. Uncle Sam's orders may be troublesome, but obeyed they must be. A hurry call was sent to a veterinary surgeon at Sarstadt, so that the camels might be saved from deportation. After a brief examination the veterinarian reported that the entire caravan was suffering from acute mange, bad teeth, and poor digestion; that they must have treatment immediately if they were to go on or they would no doubt have to be shot, since they could not stand a return trip to their homeland. A cable was sent to the American producers: What to do? The answer came back, "Send camels to hospital."

International

These distinguished visitors, even though they were so mangey that they were held in Germany for treatment before being allowed to proceed to Hollywood, California, seem to be "highbrowing" interested small boys and girls on the streets of Hanover.

International

In view of the distressing conditions, fumigation plus humiliation, such equanimity of countenance seems truly admirable. The trials of this movie star began when Uncle Sam's representative in Hanover, Germany, declared him to be in a state of health not compatible with the regulations for entry into the United States.

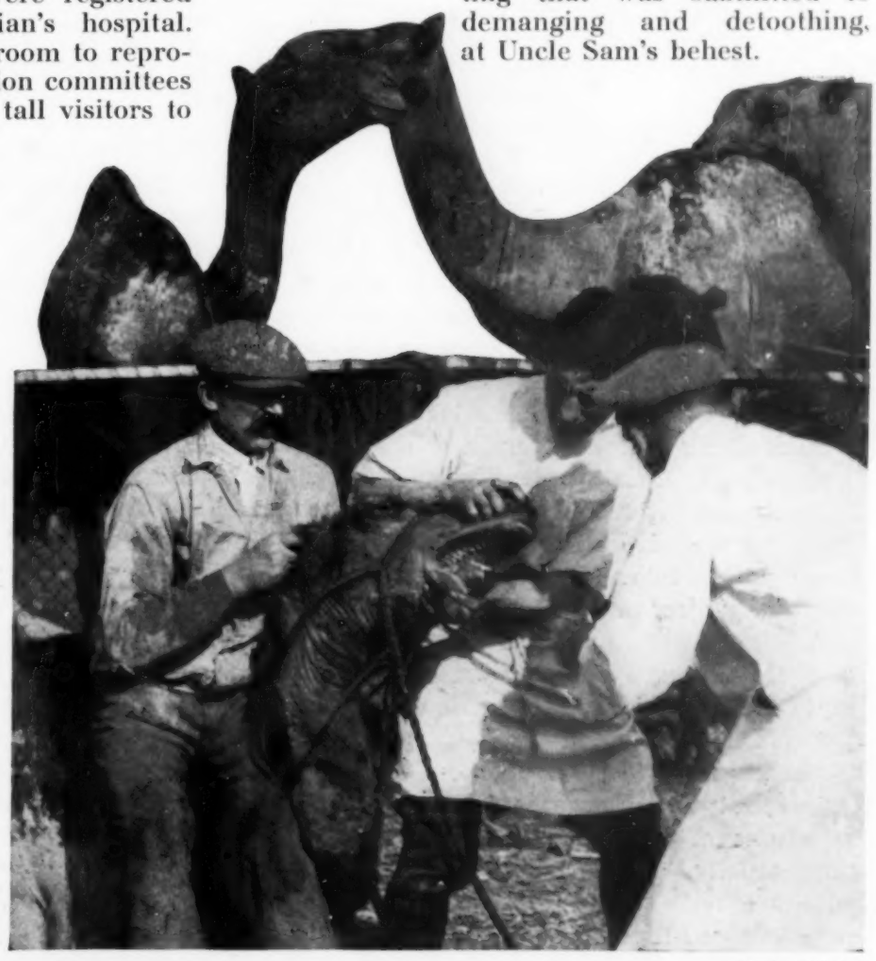
The next day the camels were registered as patients in the veterinarian's hospital. Unfortunately we do not have room to reproduce photographs of the reception committees of Sarstadt that welcomed the tall visitors to their city. But memories of the faces on circus day may here be supplemented to tell the story.

Then proceeded treatment, words for the description of which could hardly be included in a camel's vocabulary. Special fumigating cells were constructed of strong wood with doors at the front, through which each camel was backed in. The doors were then closed; extending outside was the camel's neck; a hood was slipped on to cover the neck and head, all but the nostrils and eyes. Tanks of sulphurous acid gas were connected with the cell, the gas turned on, and a process similar to that of delousing begun. In this way the entire body except the protected portion of the head could be fumigated at once.

A veterinarian, perched high on a scaffolding-like structure resembling most a stepladder, in order to meet the camel face to face, completed the cleansing of the head by applying ointment. At this some of the camels lost the forbearance and oriental acceptance of fate displayed during fumigation. But shaking their heads availed them nothing. Their protests could no more be heeded than the wriggles of the erring small boy who tries to duck at the sign of the wash cloth and soap. It was all for their own good too.

The camels also learned about some of the unpleasant incidents connected with visits to the dentist's office, for many of their teeth were condemned to extraction.

Before the camels were allowed to resume their trip to the land of promise and pulchritudinous plays they were declared to be in perfect health. They must have reached Hollywood long since. Now every time we go to a movie with an oriental setting we wonder if this is the setting that was submitted to demanging and detoothing, at Uncle Sam's behest.



Who among us does not sympathize? But by cleaning and extracting the diseased teeth of these camels Uncle Sam was protecting his people.

Plain Facts About Health and Disease

HEALTH NEWS OF THE MONTH

How Sunlight Treatment Works

Until recently, the healing influence of sunshine, which all physicians admitted, was one of those unexplained powers for good, used, as physicians say, empirically, but not scientifically explainable. It has now been shown definitely that when an infant with rickets is exposed to the ultra-violet rays from a mercury vapor quartz lamp or to direct sunshine, there is a marked increase in the calcium and inorganic phosphate in its blood. These are the factors on which bone growth and healing depend. In the same way good results have been secured in a spasmodic condition called infantile tetany, in which, as in rickets, there is a lowered amount of calcium in the blood.

New Work on Insulin

When insulin, the new remedy for the treatment of diabetes, was first discovered, two questions confronted the investigators: First, how to obtain the product from the pancreas, the only gland in which it was believed to exist, and, second, how to secure a sufficient amount of pancreatic gland tissue to provide for the needs of the thousands of diabetic patients. Recent investigations indicate that an insulin-like substance exists in other tissues of the animal body; it has also been found in considerable quantities in such plants as lettuce and onion tops, and in yeast. Dr. J. B. Collip, the first to devise a plan for extracting purified insulin from the pancreas, is also credited with a large share in these newer investigations. He has given to this newly-discovered substance, which has the power of hastening the absorption of sugars in the body and of lowering the amount of sugar in the circulating blood, the name "glucokinin."

At the same time, Dr. William Thalhimer has found that insulin may be used, combined with injections of sugar, in the treatment of conditions called acidosis and ketosis in patients who are not diabetic. In certain conditions such as those that follow the taking of an anesthetic and surgical operation, pregnancy, and certain forms of intoxication in children, acidosis develops. It has long been known that glucose solution may be of great benefit to many patients suffering with this condition, but in some it does not seem to have a promptly beneficial effect. It occurred to Dr. Thalhimer that perhaps its failure is due to the lack of a power on the part of the body to absorb the glucose administered. He therefore gave insulin simultaneously with the glucose and reported a promptly beneficial effect.

These investigations are cited as examples of how a single discovery like that of insulin may open up a great experimental field for the scientific investigator. No doubt, the future may see many other discoveries of importance in this field.

Is Rejuvenation Possible?

Newspapers have contained announcements of the prospective coming of Professor Steinach of Vienna to lecture on the subject of rejuvenation. Operations performed on animals by Steinach, and similar operations performed on man by followers of Steinach, have been cited as claims that the cutting of the tube leading from the sex glands to the excreting ducts will cause a stimulation of certain cells lying within the sex glands, the so-called interstitial cells. The evidence that these interstitial cells are responsible for the development of secondary sex characters and that they may have a power to rejuvenate the body is not generally accepted. The experiments have not been especially well controlled, and in at least two instances sudden death from apoplexy or hemorrhage of the brain followed shortly after the operation was performed in men. Knowing what we do of the condition of the rest of the body in old age, it is not difficult to explain how such accidents occur. When the evidence is all sifted, it appears that the tying off of the sexual ducts or the transplanting of sex glands is essentially a method of sex gland stimulation. Sex gland stimulation and rejuvenation are two different things. The restoration of the function of one part of the body without general restoration may be a serious matter. Certainly there is no proof that stimulation of the sexual side and sexual characters will hinder in any way the gradual aging and death of the remainder of the body.

There is, then, no good evidence that rejuvenation can be accomplished, but we do have methods of prolonging life. The person who wants to live long can have a periodic inspection by a competent physician who will tell him where repairs are needed and indicate measures for relief. He can have a proper amount of rest and recreation, of food and of cleansing. Attention to all of those needs included under the general heading of hygiene and sanitation will go far toward lengthening the life of the human machine, just as they would in a mechanical apparatus. M. F.

THE WORLD CONFERENCE ON EDUCATION

THE World Conference on Education, held in San Francisco June 28 to July 6 in connection with the annual meeting of the National Education Association, was a significant event. About sixty of the world's nations were represented by official delegates, many of whom were picturesque in their native costumes. The deliberations of the conference were conducted in eight sections, among them those devoted to international cooperation, the dissemination of educational information, conduct between nations, international ideals, health education, and rural life conservation.

The Chinese delegation proposed the establishment of a world wide celebration of a "World Good Will Day." From China also came the draft of a constitution for a world organization of teachers; steps were taken to bring about such an association.

In a joint session of the section on international ideals and the section on conduct between nations, the teaching of world civics in conjunction with national civics was discussed. The inculcation of peace ideals in children was urged, rather than the warlike spirit called forth by the deification of former war heroes.

"Civics and history must not be taught in each country at the expense of the other nations of the earth. The hope of world peace is in education," in training the young to the idea that "all are but parts of one tremendous whole," and in driving into the minds of children and adults that what is won from nature is a gain, and what is taken from others by conquest is a loss to the human family.

All children in every land should be taught patriotism—to honor the fathers of their country—but they can learn that while being taught that the world is an organic whole with all its parts knit together in close relationship.

It thrills one to reflect on the great possibilities of a united effort of the more than five million teachers of the world represented at the conference in San Francisco to inculcate the doctrine of good will and peace among nations by abolishing from the text-books those things which have bred distrust and hatred.

Another dominant note of the conference was the importance of "health in education and education for health." This was the theme of the well organized and well attended section on health education. Eight half day sessions of this section were held. The general character and importance of the discussions is indicated by some of the papers presented, "Hopes and Aims of the Conference," "The Spirit of Health Education," "Health Education of the Very Young," "Belgian Work with Undernourished Children," "Nutrition and Health Education" (five papers by recognized leaders in this field), "The Relation of School Physicians and Dentists to Health Education," "The Nurse and Health Education," "Physical Training in Health Education," and "The Training of Teachers and Leaders for Health Education." The program for the final session, "Some Factors in Health Education," contained such discussions as "The Objectives of Health Education," "Educational Principles That Should Underlie Effective Methods," "The Use and Abuse of Physical Indices in a Program of Health Education," "The Importance of Health Education in a Public Health Program," and "Correlating the Curriculum in Health Education with the Rest of the School Program," all topics of interest.

Keen, intelligent discussion of the papers by the delegates from foreign countries made it evident that health is recognized throughout the civilized world by those who are engaged in the education of the coming generation as the most fundamental and vitally essential subject in the school curriculum. That is a fact of tremendous significance. It is but a few years since the attitude of the teaching profession, at least in the United States, toward physiology, hygiene, and the allied topics in the curriculum was one of indifference, or at best, of luke warm interest. Today, the all but universal feeling of those engaged in the teaching of our youth (an army of teachers of more than seven hundred thousand in the United States alone) is that expressed by one of the leading superintendents in the public school field:

"We speak of education for the four H's—head, health, hand, and heart. Give me the education for health, and I care not who does the rest."

Given a nation whose citizens have been educated by teachers with such ideals and purposes, the possibilties of minimizing the "ills that flesh is heir to," and of realizing to the full the vigorous, happy, effective lives that are compatible only with sound bodies and sane minds—these possibilities are almost limitless.

J. M. D.

UNDERESTIMATING THE DANGER OF MEASLES

THEY'LL have to have them sooner or later, so I suppose they might just as well have them now when all the other children are staying in too," is the well-nigh homicidal attitude of many parents when their children have been exposed to measles or when, during slight attacks of measles, they want to join their playmates. Perhaps if these parents knew that in the one year 1920 ten thousand children in the United States died from measles, that many more died from bronchopneumonia following measles or later from tuberculosis, and that other thousands were left to suffer life long from "weak" eyes and "running" ears, they would regard measles with appropriate dread, instead of as one of the lesser ills that every child is heir to. In *Public Health Reports* for August 25, 1922, Surgeon W. C. Rucker of the United States Public Health Service gives facts and figures concerning measles that all of us should know. It is generally believed, he states, that measles is most contagious when the patient is peeling. But recent studies seem to prove that when a person is "coming down" he most easily spreads this disease. "When it is known that measles exists in a community, no child having a bad cough should be allowed to come in contact with other children during the first three or four days of the cough." Most epidemics of measles come during the cold months, no doubt because people are crowded together under less sanitary conditions than during the warmer months. But at any time measles spreads with ruthless thoroughness.

The first introduction of measles among a people illustrates how likely the germs are to attack all persons in the community. In 1846, one man with measles landed on the Faroe Islands, where there had been no measles for many years. Six thousand of the 7,782 inhabitants were attacked by the disease. The first epidemic in the Fiji Islands killed 20,000 persons within four months. Such numbers may make us believe that we are fortunate. Hardly. According to Dr. Rucker, the death rate from measles in the United States varies from 0.5 to 35 per cent., and the average may be considered 1 per cent. Therefore, since ten thousand children died from measles in 1920, about one million children had the disease that year. The death rate in babies is about ten times that in older children, but as the child grows up its liability to acquire measles continues, for the adult does not become immune to the disease. However, "the longer one can put off having measles the better, because the younger the child is when it has measles the more likely it is to die, and the more likely it is to suffer severe effects from it even if it does not die." But we cannot justify ourselves in allowing children or adults to be exposed to measles at any time in the belief that measles will eventually reach all, that it is no respecter of persons. It is a respecter of persons—of persons who shun it.

H. M. H.

"IDIOTS SAVANTS"

IT IS a well known fact that, in addition to defective mental development, there are instances of irregular mental development, resulting in special abilities which are quite phenomenal. Psychiatrists have studied such instances carefully, but they differ as to how persons of such unusual development should be classified. Probably most of them might properly be classified as imbeciles or merely feebleminded, although Tredgold, lecturer on mental deficiency at London University, prefers to describe them by the extraordinary title of "idiots savants." When the anomaly concerns one of the special senses the possessor is frequently able to perform remarkable feats. In one English asylum mentioned by Tredgold was a boy with such fine tactile sense that he could split a newspaper page into two perfect sheets, just as one might peel a postage stamp from an envelop. Several imbeciles were able by the sense of smell to pick out their own and companions' clothes. In other types the memory seems to be especially gifted. In the Earlswood Asylum is a man sixty-five years of age who has no ability to use his mind for ordinary purposes, but who has memorized a complete biographical dictionary and is able, on mention of any name in it, to reel off in a steady, unhesitating stream a full account of the person's birth, life, and death. In Normansfield, another institution, is an imbecile, thirty-eight years of age, who, if given any date during the last five years, can state the day of the week correctly without hesitation. Another inmate, who in addition to being mentally enfeebled was com-

pletely blind, had developed the faculty of calculating to a degree little short of marvelous. Within four seconds he could give the square root of any number running into four figures, and within six seconds the cube root of any number with six figures. Tredgold suggests that such instances represent the concentration of all the mental faculties along a single groove, because of some physical impossibility to develop the mind in the normal manner.

M. F.

"COLDS" IN SCHOOL CHILDREN

A STUDY of the effects of "colds" and allied conditions on the interruption of attendance at school has recently been made by Dr. Howard H. Mason of Columbia University and reported in the Teachers College Record. It is the ambition of every teacher and the desire of every parent that the children lose as few days as possible from school, but every child when ill must be kept out of school for the sake of its own health, and, in the case of a communicable disease, for the protection of its schoolmates. That careful attention to this matter results in the minimum total loss of days of attendance at school was demonstrated by the results of Dr. Mason's test. Efforts were made in the Lincoln School of New York City to control school attendance by eliminating the spread of infection by pupils. Careful comparisons were made of absences due to causes other than illness, to contagious diseases, to respiratory diseases, to influenza, and to miscellaneous causes such as injuries, operations, digestive disturbances, and the like. By a carefully developed program the total absence has been decreased from about 15 per cent. in 1917 to 1918 to 9.3 per cent. in 1921. This result is excellent, not merely because of the saving of days for educational purposes, but as indication of better health of the pupils.

A further reason for keeping at home children with distinct symptoms of cold in the head, sore throat, or cough, is the fact that these same symptoms are among the first to be shown in some of the contagious diseases of childhood, such as measles, German measles, mild scarlatina, whooping cough, and diphtheria. The keenest, most experienced physician is often unable to determine for some hours whether the child with these signs of disease is or is not the victim of one of these infections, but even in this early stage they are transmissible to others. The only safe way to protect other children in the school is to exclude the afflicted children as long as they are sneezing or coughing or have any considerable discharge from the nose.

The ordinary cold, or coryza, has not received adequate consideration. Too often it is deemed merely an inconvenience or an uncomfortable nuisance. At the Lincoln School more days were lost by pupils with colds than from all other causes combined, and this probably represents the general school experience. The serious complications such as inflammations of the middle ear, of the various sinuses, and of the glands that may arise from a cold make it sound policy to protect children from unnecessary exposure to this disease.

Parents are constantly importuned by educational authorities to send their children to school lest they fall behind in their work; minor ailments are ignored. Even the medical profession is inclined to underestimate the seriousness of colds, and, in the absence of complications, to permit children to attend school regularly. There can be no doubt, however, that the ideal medical position is to advocate absence from school far more frequently than is now the practice. The mere fact that we know so little about coryza indicates the importance of giving it more thoughtful attention. It is a condition that does not induce much immunity; indeed, it appears to reduce individual resistance to various infections. Our knowledge of the microbic causes of colds is still unsettled and the results of treatment with vaccines, either to prevent or to cure the disease, are as yet most inconclusive. Until we have much more definite and satisfactory knowledge of these matters the wise plan is to keep children with colds out of school. They are a serious factor in the illness and mortality of children of school age. This will be more difficult in public schools than in private institutions, but should be urged by every physician.

J. M. D.

SUFFOCATION DUE TO GAS HEATERS

GAS heaters and gas stoves are now used so generally that few persons realize the dangers that may go with them, dangers easily avoided with proper care, but none the less real. The Ohio State Department of Health reports (1923) that eighty-one persons were suffocated, thirty-four of them fatally, in one period of ten weeks in that state alone. The danger is due to imperfect combustion of the gas, and this arises from supplying insufficient air to the flame, or from cooling the flame by letting it play against a cold sur-

face. Artificial coal gas needs, for perfect combustion, about five times as much air as gas; natural gas requires just twice this proportion. For this reason a burner adjusted correctly for artificial gas will not do for use with natural gas. Many devices offered for sale are claimed to destroy the gas fumes. None of them can be relied on. The only means of safety is a flue to carry off the fumes. If for any reason it is necessary to use a heater without a flue, the windows should be open and there should be a free draft of air.

The suffocating gas in the fumes is known as carbon monoxide, which has neither color, taste, nor odor by which it can be recognized. It kills by uniting with the coloring matter in the blood and thus preventing the blood from carrying the oxygen of the air to the tissues. Death may be almost instantaneous if the dose is large; usually it is preceded by yawning, sleepiness, a feeling of tightness in the forehead, headache, dizziness, nausea, and then unconsciousness. When the quantity of carbon monoxide is less, but is inhaled repeatedly over a longer period, as by sleeping in a room with a gas heater, there is loss of energy and vitality, often with headache, sleepiness, and shortness of breath on exertion. In this state of lowered resistance persons are undoubtedly more liable to catch various diseases, especially pneumonia, than in normal health.

If suffocation with gas fumes is suspected, send at once for a physician and the nearest pulmotor. Place the victim in the open air. If breathing has stopped, begin artificial respiration. If sufficient oxygen can be given, recovery may still occur, even after breathing has ceased entirely. But prevention is better than cure. All gas heaters should have flues.

H. D. S.

CHASING WILL-O'-THE-WISPS

WHEN the doctor gently chides the patient who has wasted vitally valuable time chasing the latest advertised panacea, the victim always has a "come-back." He—or, more often, she—retorts that the medical profession is always opposed to new methods of treatment. There is no gainsaying the fact that ancient and medieval medicine was narrow and ecclesiastical in its attitude. At that time medicine was not a science, but a more or less imperfect art. It attracted, it is true, many brilliant minds, but it also had in its ranks a large preponderance of mystics and charlatans. What we know today as the science of medicine is of recent growth. The application of modern scientific methods to the study of the human body and its processes has produced results as far-reaching in their scope as any accomplished in other fields of human endeavor. Moreover, by applying the methods of the twentieth century both to the study of medicine and to the organization of the medical profession, charlatanism and mysticism have become the exception instead of the rule in medicine. The modern medical quack and faddist is but an excrescence. The result of all this has been to raise enormously the standard of the collective judgment of the medical profession. A careful review of modern medicine will show that in not one instance has the mass judgment of physicians been at fault in condemning methods of treatment that have failed to meet the exacting requirements demanded by the physician of today.

A. J. C.

CAN THE HAIR TURN GRAY OVER NIGHT?

EVIDENCE is available, and the opinions of many authorities support the evidence, that sudden graying of the hair may occur. Certainly, innumerable instances of the sudden graying of small patches of hair have been authentically observed and there are numerous reports of hearsay evidence of graying of all the hair in some cases. In fact, the belief that such remarkable metamorphosis may take place is so well grounded that Byron in "The Prisoner of Chillon" wrote:

> My hair is gray, but not with years,
> Nor grew it white
> In a single night,
> As men's have grown from sudden fears.

And Sir Walter Scott, in "Marmion," said:

> Danger, long travel! want and wo,
> Soon change the form that best we know;
> For deadly fear can time outgo,
> And blanch at once the hair;
> Hard toil can roughen form and face,
> And want can quench the eye's bright grace,
> Nor does old age a wrinkle trace,
> More deeply than despair.

Marie Antoinette and Mary, Queen of Scots, have been reported as having appeared on the scaffold with hair suddenly whitened. Gould and Pyle, in their collection of anomalies and curiosities of medicine, cite many instances, reported in medical literature, of the sudden loss of pigment. In one instance, described

in a medical journal in 1851, the hair of a man of thirty years turned white in twenty-four hours. The man was sick in a mining camp and fell asleep. When he awoke a grizzly bear was standing over him. The next day his hair was white. Another instance was that of a man who placed his entire savings of $1,100 on one turn of the cards in a game of chance. He was under great nervous excitement while the hand was being dealt; the next day his hair was white. The story does not relate, however, whether he was trying to make two pair stand up or to fill a bob-tail flush.

Practically all physicians who have specialized in diseases of the skin are agreed in accepting the available evidence that sudden graying may actually occur. Pusey states that "there are some well authenticated cases of sudden blanching of the hair, nearly always after severe nervous shock." Stelwagon affirms that "the question of the possibility of sudden graying of the hair is one that has been considerably discussed, and still has many doubters. But the various instances reported by competent observers indicate that such can take place." And Sutton abruptly asserts that "sudden blanching of the hairs is an extremely rare phenomenon, but it undoubtedly does occur in some instances."

Medical literature previous to 1900 contained numerous references to cases of this character. When the reports are examined with a view to scientific exactitude many of the cases must be eliminated because the evidence is of a hearsay character. Nevertheless, a few instances are of such type as to bear close scrutiny. Among these is a case occurring in the practice of the French physician Landois. A man was brought to the hospital suffering with delirium tremens. As is often the case in this disease, the mind of the patient was troubled with terrifying pictures. After four days the patient began to improve, but during the night of the third day, according to Landois, the hair of his head and beard became gray. Much more recent are reports by an Italian physician, Lutati, of instances during the World War. The hair of an artillery captain, twenty-four years of age, turned almost completely white during the two days of the battle on the Piave. A young lieutenant, who had barely escaped being taken prisoner by the enemy, found that a patch of hair on one side of his head turned white in the course of a day. Lutati claims to have witnessed premature whitening of the hair in several aviators, and said it was not uncommon among men who had spent several months on the advanced front.

In view of our present knowledge of the structure of the hair and its manner of growth, what rational explanation can be offered for the mechanism by which such sudden whitening is brought about? The opinion of Landois, in 1866, was that the white appearance was due to air bubbles which developed within the hair. No doubt the silvery gray in aging persons is partly the result of a larger number of air cavities within the hair. The question, however, is whether or not pigment has been removed from these air spaces. The renowned Metchnikoff, always interested in the phenomena accompanying old age, studied the mechanism of the whitening of the hair. He had observed the important part played by the white cells of the blood—called phagocytes—in the removal of bacteria and débris from the cells of the body, and it occurred to him that it might be these white corpuscles that remove the coloring matter of the hair. He studied the roots of the hair under the microscope and determined that the whitening process is accompanied by a stimulation of such cells, which he said introduce their prolongations into the hair, absorb the pigmented granules, and digest them, partly on the spot, and partly after carrying them into the root of the hair. As the pigment becomes destroyed, the hair loses its color and whitens. He gave the cells responsible for the removal of pigment the title of chromophages, meaning destroyers of coloring matter. However, several scientists who have carefully studied the mechanism of graying have refused to take this explanation seriously. Although it seems unquestionable that small patches of hair may suddenly turn gray and that there is evidence that in some instances all the hair has turned gray during very brief periods, it seems unlikely from the present knowledge regarding the rate at which changes usually occur in the body tissues, that the long hair of a woman could completely lose its pigment within twenty-four hours or, in fact, even within a week.

Because of the very nature of cases of sudden graying they are few and far between. It is obviously impossible to reproduce the situations experimentally. One can only examine all of the available evidence and draw conclusions accordingly. The conclusion seems to be that, whatever the mechanism, a few such instances have been described with exactitude sufficient to meet the test of scientific evidence.

M. F.

HEALTH NEWS AND VIEWS

SCHOLARSHIPS FOR TEACHERS OF HEALTH

The Metropolitan Life Insurance Company has donated, through the American Child Health Association, a fund of $25,000 to be used as scholarships to teachers best fitted to promote health work in the schools. There will be fifty scholarships of $500 each. Applications will be received by the American Child Health Association until December 1, 1923.

PROGRESS IN HOME CLEANING METHODS

The modern vacuum cleaner is almost indispensable in the equipment of every well regulated home. The old fashioned broom and feather duster with the cloud of bacteria stirred up by their use were unquestionably means of spreading contagion. From a sanitary standpoint the vacuum cleaner is a vast improvement.

Attention was first called to the advantage of cleaning by vacuum by an article in the London *Lancet* that was reprinted in the *Bulletin of the Department of Health of Chicago* by the late Dr. Frank W. Reilly, then assistant commissioner of health. The *Bulletin* was issued March 14, 1903. Said Dr. Reilly,

"The hygienic housewife and every good housekeeper—and every good housekeeper is a practical sanitarian—will welcome this new appliance."

The vacuum cleaner was first introduced into large office buildings, with the suction apparatus attached to pipes leading to central exhaust devices, replacing the method of blowing the dust from rugs, curtains and furniture. Later came the small vacuum cleaner operated by the electric current that made it practical for use in the household, since it is necessary only to have the proper electric connection for the cord connecting with the motor.

The early types of cleaners were defective because the bag in which the dust and dirt were collected was of flimsy and allowed the dust to leak into the room. A single grain of such dust was found to contain many millions of bacteria, and many of the bacteria were found by actual test to be disease producing. This defect has been corrected in the recent appliances by a specially woven, nonleakable bag of double thickness, that has an antiseptic oil compound in the space between the two layers of cloth in order to render it nonporous. This bag is bacteria proof.

Dust in the home, the shop, or the factory is always a menace, because such dust frequently carries the germs of contagion. The vacuum cleaner with the recent improvement has reached a high degree of efficiency and has become a means of minimizing one avenue of infection.

WORK FOR CHILDREN

What is the physical status of mentally superior children? A study of 1,000 such children in California is to be the basis of the answer to this question by Dr. B. T. Baldwin, of the State University of Iowa, Iowa City, and Dr. L. L. Terman, Stanford University, San Francisco. The investigation is being financed by the Commonwealth Fund of New York.

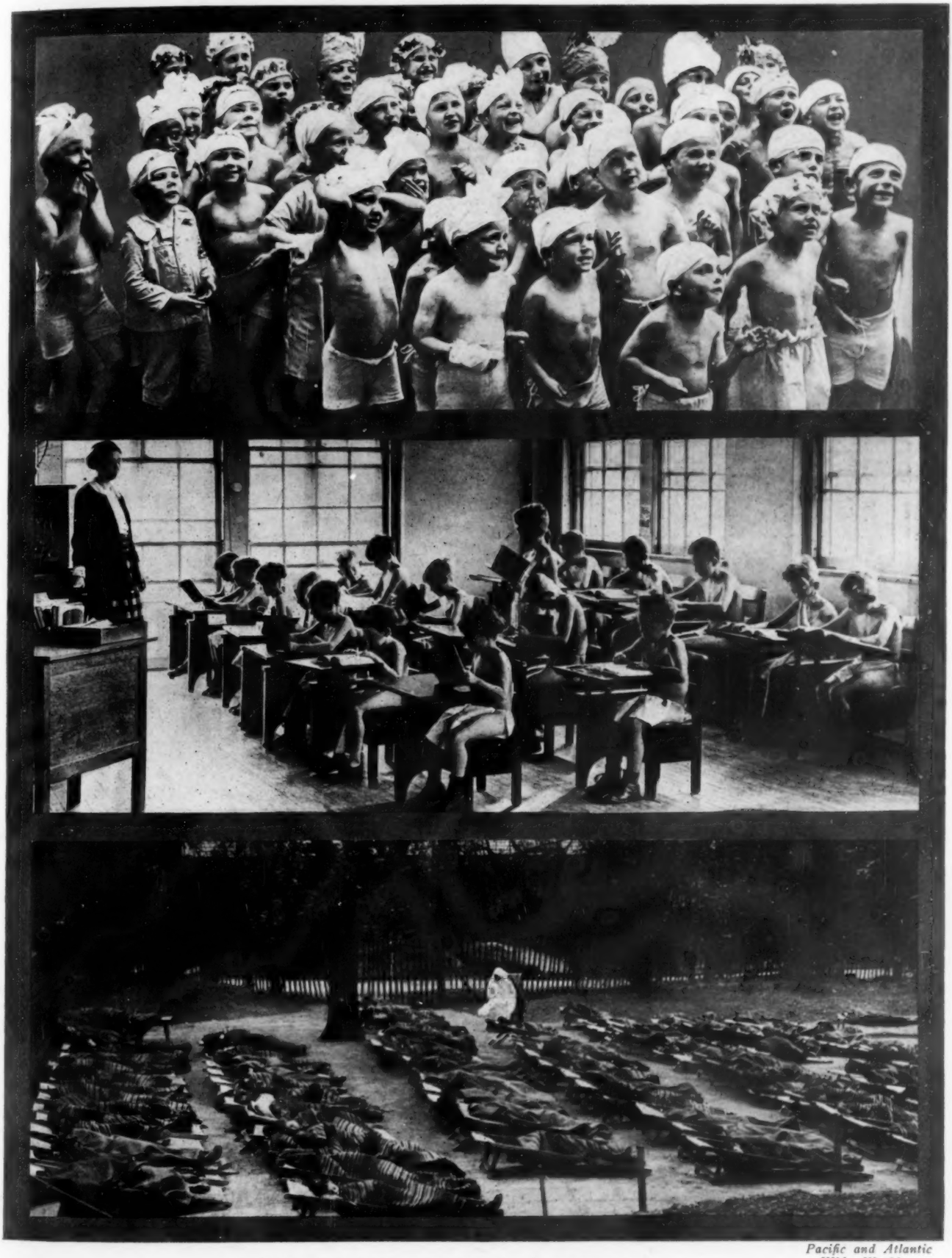
Recently a state Rotary society for crippled children was organized in Nashville, Tennessee. California, Illinois, Kentucky, Michigan, New Jersey, New York, Pennsylvania, West Virginia, and Ontario, Canada, earlier organized similar societies since the movement in Rotary began in Ohio in 1919.

The second habit clinic in the United States has been established by the Psychological Clinic in Louisville, under the supervision of the Louisville Society for Mental Hygiene. The clinic is for children of preschool age who show pernicious or persistent habits, which, if unchecked, may become serious.

Wide World

KEEP THE BABIES SUNNING

These baskets were discovered on the lawn of a children's hospital. But whether the babies are sick or well, they are better for daily sun baths. If they are sick, they will get well sooner, and if they are well, they won't so easily get sick. The time is coming when it will be recognized that sun and air are as much food for growth as milk and bread.



Pacific and Atlantic
Wide World
Swastika

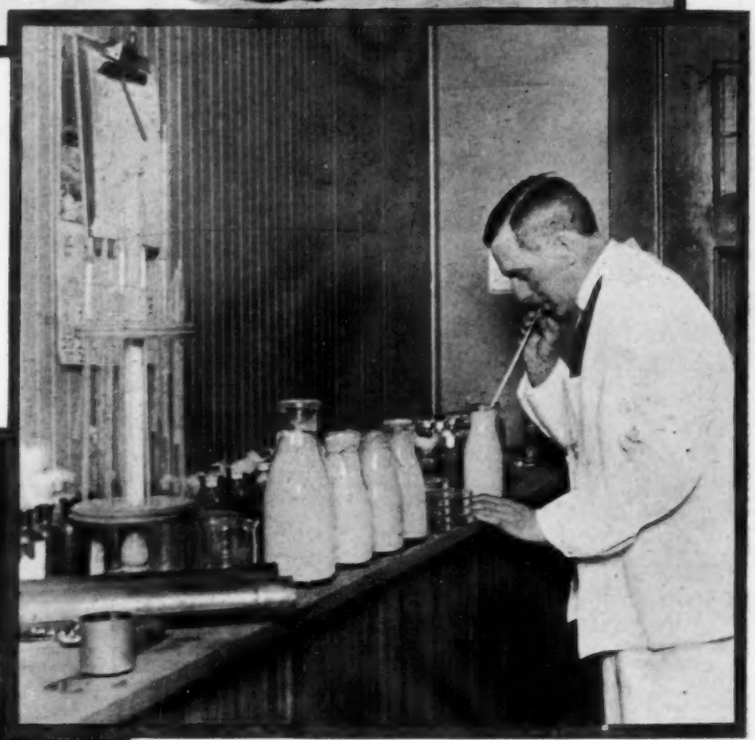
FRESH AIR FOR CHILDREN IN EVERY LAND

These children are receiving probably the greatest tonic known to man—sunlight and fresh air directly on the body. At the Municipal Institute for the Treatment of Sick Children, Buch, Germany, the patients are being treated to a puppet show. In the Glenlake Sanitarium, outside of Minneapolis, tuberculous children go almost naked all year. At the Bow Road London County Council School, classes are held outdoors; after dinner the rest hour is spent outdoors.

Wide World

THE AMBULANCE OF THE AIR

The army's new hospital ambulance plane accommodates four patients and attendants. The windows give plenty of light and air, and the stretchers are fully as comfortable as those in an auto ambulance. The equipment for first aid treatment provided by the plane and the speed with which it can carry patients to the hospital will mean the saving of lives.



Mirzaoff

TESTING MILK

No, this bacteriologist is not taking milk through a straw. He's drawing out some to be placed under conditions favorable to the growth of germs. If he finds the wrong kind of germs, the milkman will hear from the city board of health.

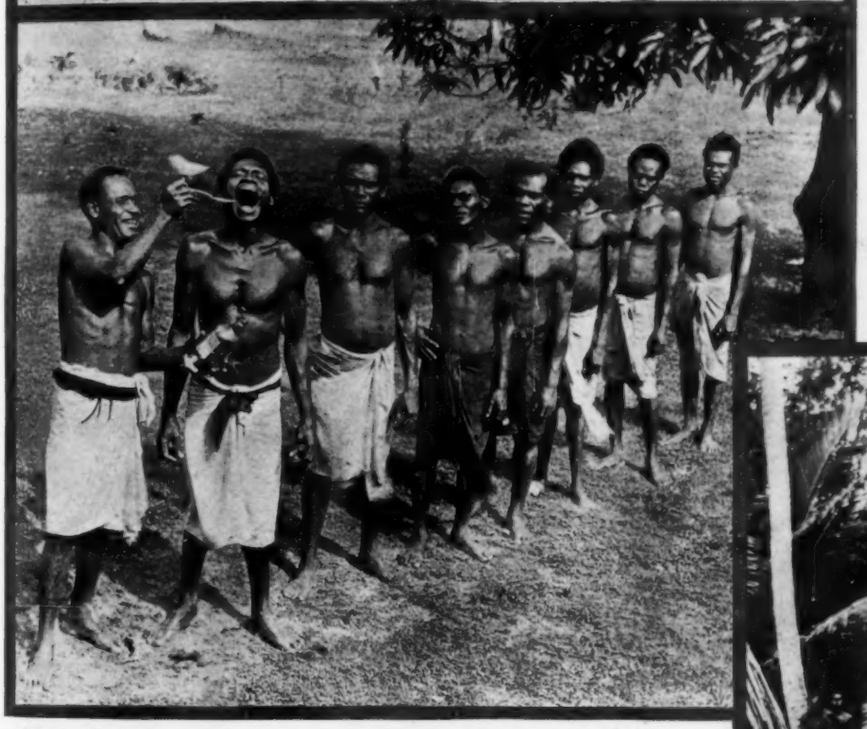
Underwood

SAFETY FIRST

The mask protects this welder of street car rails from the glare of light from his torch and from flying sparks.

PRIMITIVE MEDICINE IN 1923

In the Sudan, the practice of medicine by women antedates college education for women. Cupping may now seem ancient medicine, but it was practiced until rather recent times by most physicians and is even yet occasionally used in special cases. No need for a glass or rubber cup when the horn of some animal is handy.



SOMETHING TO CRY FOR

The medical missionary to the lands of his black brothers has surely done his part for preventive medicine, for to him is given credit for this precaution againts dysentery: castor oil by the tablespoonful. But judging from the expressions on these faces, he has not been able to instill resignation and submission to as well as respect for the medicine of the occident.

International

International

NOT TARRED AND FEATHERED

But dressed in his Sunday best. This witch doctor of the South Sea Islands is only carrying his income with him, shell money contributed by the patients from whom he has driven out evil spirits. Suggestion as a means of dispelling disease surely does not belong to civilization or modernity. And what could be better evidence of the power of autosuggestion than the faith to feel one's evil spirits in flight—and gladly pay for their fleeing? Another similarity between all peoples and peoples of all times is their willingness to follow the person who claims curative powers—whether or not he has them.

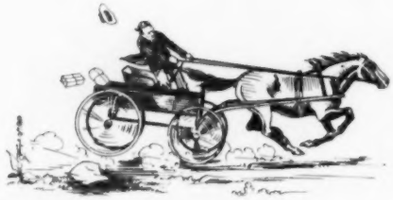
Pacific and Atlantic
Wide World
Pacific and Atlantic

HOW TO SPEND THE SUMMER

Even during the summer the organizations that care for children do not take vacations. The top picture makes one believe that summer gardening is great fun in the supervised school plots. The Young Women's Christian Association takes the girl scouts to the country and, while they are reveling in camp life, trains them in the art of cooking, hygienic camping, and sororizing. No adult head was needed to plan the race about to be finished—and how could it be better done?

I'm JIMMY GERM—
I'm a villain rare.
I hate clean folks and I hate fresh air.
I'm a trouble maker, and I spend my time
Looking for victims for my style of crime.
If I find a boy who likes to scrub
And is not afraid of his daily tub,
I shun him, for it's plain to see
There is no room on that boy for me.
What I like best is a dirty boy
(Dirt makes disease and brings me joy)
Who sleeps in impure air all night,
With doors and windows all shut tight.
On him I find a home until
I multiply and make him ill.
Then we enjoy his misery,
Oh, a villain's life is the life for me.

About Getting Scared



ONE day a man was driving along a country road when suddenly a stray gust of wind whirled a piece of paper into the air from the side of the road. His horse, a fine big fellow, quite young and spirited, saw the piece of paper and was frightened. He shied, nearly upsetting the buggy and then ran as hard as he could go. For a long time after that whenever he saw a bit of white, or whenever he passed that spot in the road, he became scared and tried to run away. Fancy being scared of a piece of paper blown by the wind! Wasn't that a stupid thing for the horse to do? Of course, when he was older and had learned more about things, he gradually lost his fear.

The trouble was that the horse did not know it was only a piece of paper. He did not wait to find out. He just ran. The horse does not have brains to think with like ours. But do you know that in spite of our brains we often behave much like this horse? Something startles us or someone makes a remark that we do not understand and instead of using our brains we become frightened and run away, when the cause is quite likely as harmless as a piece of paper. If only we would wait to see what it really is we would save ourselves a lot of unhappiness. Like the horse, if we allow ourselves to run away, we get into the "fraid cat" habit of being frightened when anything even faintly reminds us of the first time we were scared and ran, although we may have forgotten what scared us. The only way to act when we think we are frightened is to face the thing with courage and so learn what it really is. Most of the time we will find that there is no reason to be afraid. Indeed, we will often find that the cause is really interesting. H. D. S.

How Colds Travel

There once were some bold, bad germs of a cold
That longed for adventures wild.
But these wicked germs have no wings, no legs
So they needed the help of a child.
(Oh that foolish, heedless child!)

So they clung to a public drinking cup
Till a thirsty boy came by;
Then they stuck to his lips and tickled his nose,
And even made him cry.
(Such cups I'll pass right by.)

They tickled that boy till he sneezed right out
In a crowded, public place.
Though his mother had warned him oftentimes,
He forgot to cover his face.
(Pray always cover your face.)

So the bold bad germs rode their droplet steeds
In search of a victim new,
And among the many who stood close by,
They managed to capture two.
(I'll smother that sneeze, won't you?)

They went with a little maiden home,
And kept her two days in bed;
She talked in a croaky sort of voice,
And her eyes and nose were red.
(Oh, I'm glad that she stayed in bed!)

But when she was out of bed once more,
She forgot those germs to fear,
And romping about the house, she kissed
The lips of the baby dear.
(Kiss only the tip of his ear.)

Of course those germs just delighted to tease
The poor little helpless mite,
And father and mother were sick with fear
As they watched with him through the night.
(You too would have pitied his plight.)

Some other germs that this sneeze sent forth
Went to school with a thoughtless boy.
When he stuck his pencil right in his mouth,
They nearly shouted for joy.
(Never follow the lead of that boy.)

That pencil was lent to the boy next door
Whose pencil had broken its lead.
He thoughtlessly touched it to his lips
And next day had a cold in his head.
(When you write never moisten the lead.)

The tale of their travels would have no end
For germs are a tireless lot;
They are always in search of the careless child
Who says, "Oh dear, I forgot."
(Pray tell me that you do not!)

But now that you know where wicked germs lurk
And their evil ways you see,
I'm sure that you'll always be on your guard,
Be as careful as can be.
(Come now, won't you promise me?)

GIULIA H. LUGINBUHL.

BOOK REVIEWS

THE INFANT AND THE YOUNG CHILD: By John Lovett Morse, M.D., Edwin T. Wyman, M.D., and Lewis Webb Hill, M.D. Cloth. Price, $1.75. Pp. 271. Philadelphia. W. B. Saunders Company. 1923.

For the mother of a first child or for anyone wishing a little insight into some of the simple problems of infancy and early childhood, this book is a valuable little guide. It tells about bathing and clothing the baby, feeding, growth and development, care and training, and common diseases and emergencies. It is well written and offers concisely many accurate directions. One feels that the subject of care and training should have more space than has been given to it, especially because the discussion is so interesting.

The authors adhere in a general way to the principle of feeding infants artificially by modifying cow's milk into mixtures resembling breast milk. It is well to recognize, however, that the problems in infant feeding have not been solved entirely. The diet lists given for older children, while very concisely presented, might be considered somewhat too restricted by many physicians.

HEALTHY LIFE: A letter to boys and young men on the origin of life and the truth about sex: By Edwin W. Hirsch, M.D. Paper. Pp. 24. Chicago. The Solar Press. 1923.

Dr. Hirsch has made another contribution to the large and growing literature on sex hygiene; his booklet is in the form of a letter to a young man written at the request of the boy's father.

The brief explanation of the origin of life in plants, in some of the lower animals, and finally in man is perhaps as clear as so condensed a statement can provide, but it fails to emphasize the dominant fact that the sex instinct which is provided by nature to insure the perpetuation of the various forms of animal life is essential only for that function. The indulgence of the sex impulse is not indispensable for the maintenance of physical or mental vigor. Sexual continence is compatible with the highest degree of human efficiency.

The story of the evil results of illicit, or promiscuous, intercourse is devoted to the discussion of gonorrhea. This story would have been more emphatic and impressive to young men if the disastrous and far reaching consequences of gonorrhea and syphilis had been more clearly described and stressed.

Such books are helpful in calling the attention of young men to the serious and almost inevitable bad consequences of sexual incontinence, and may lead some of them to seek information and advice from parent or physicians. But an adequate conception of the story of sex—of the wise provision of nature to insure the perpetuity of living things—the beautiful, sacred character of motherhood, and, on the other hand, the degrading influence of those practices which prostitute the sex instinct, and the terrible price that human society, collectively and individually, pays for such prostitution—the full and impressive story of these things can seldom be told to a boy or to a young man in book form. Until parents generally take their sons and daughters into their confidence and tell them, at an early age, the true, full story of the meaning of sex and sex indulgence, vast numbers of young girls and especially of boys will continue to get their first knowledge of sex matters from evil companions in a distorted, obscene form which leads them to, rather than protects them from, the evils of sex indulgence. If a parent feels himself lacking in knowledge of these matters or in the necessary courage and tact, the best alternative is to enlist the aid of the family doctor. He should impart the information not by written or printed letter but by a confidential, personal talk always, so far as the more intimate facts are concerned, to one boy at a time, never to a group. Practically all the available books on the subject tell enough to arouse curiosity without actually conveying sufficient information to satisfy or dispel it. This is true of this book, "Healthy Life."

RIGHT FOOD THE RIGHT REMEDY: By Charles C. Froude, B.Sc. With an introduction by Royal S. Copeland, A.M., M.D. Cloth. Price, $2.50. Pp. 300. New York. Brentano's. 1923.

The author of this book, according to its cover and title page, is "Charles C. Froude, B.Sc." The book contains an introduction by Royal S. Copeland, who was once commissioner of health of New York City and is now a United States senator. Dr. Copeland speaks of Charles C. Froude as "Dr." Froude. From material on file it is quite evident that Charles C. Froude is not a physician, but he does seem to be a chiropractor. In the first page of his book Froude acknowledges his indebtedness to certain individuals in the preparation of "Right Food The Right Remedy." First, he expresses his "cordial thanks and grateful appreciation to Dr. Harry Ellington Brook, Los Angeles, Cal." Brook is not a physician, but calls himself a "naturopath"—whatever that is. He conducts a weekly column of dietetic and medical misinformation in the quackish columns of the Sunday magazine section of the Los Angeles *Times*. Brook also has a mail-order medical concern of his own—advertised, of course, in the Los Angeles *Times*. Froude then makes "special acknowledgment" of the assistance he alleges to have obtained from "the teachings of Dr. J. H. Tilden of Denver, Colo." Tilden issues a publication that was called *The Stuffed Club* and is now termed *Philosophy of Health*. In this magazine Tilden expounds his ideas and philosophy, to wit: He does not believe in the "germ theory," declares that smallpox is not contagious and that vaccination is a delusion, and denies that mosquitoes bear any relationship to the distribution of malaria. It is not recorded whether he believes the world to be flat. The *Philosophy of Health* is also used by him as an advertising asset in getting patients, both directly and on the mail-order plan. Froude says, too, that in preparing his book he has been "much indebted to Dr. R. L. Alsaker." Alsaker is the exploiter of "The Alsaker Way," a series of books advertised and sold for the alleged purpose of teaching a person how to cure himself of heart disease, influenza, pneumonia, and various other things. The trend of the books might lead the public to believe that all physicians except Alsaker are fools or rogues and that only by "The Alsaker Way" is physical perfection to be attained.

Having learned of the three most important sources of spiritual and material inspiration for "Right Food the Right Remedy" and sensing further that the author is a disciple of a cult noted for its ignorance of even the fundamentals of science, the reviewer expected to find the book one of those affairs made up of banalities of elementary dietetics and pseudo-scientific fads. It fulfilled the expectations.

HOME AND COMMUNITY HYGIENE: By Jean Broadhurst, Ph.D., Assistant Professor of Biology, Teachers College, Columbia University. Cloth. Price, $2.50. Pp. 428, with 118 illustrations. Philadelphia. J. B. Lippincott Company. 1918.

This book contains chapters on bacteria and other micro-organisms; the human mechanism in relation to health; food; milk; water; air and ventilation; sewage disposal; refuse disposal; communicability of disease; disinfection and quarantine; prevention of disease; tests for disease; the home; summer camps; schools; other community units; infant welfare; middle age; industrial and occupational hygiene; mental hygiene; rural and urban conditions; vital statistics; and health education and health administration. We have gone through every chapter in the book, and we have no hesitancy in saying that it is sound in statement, clear in presentation and valuable as an aid in the acquisition of knowledge essential to bodily and mental health. Since the factors discussed are many, the statements on some are necessarily brief, but they contain the gist of the matter. Miss Broadhurst has very wisely attached to each of the books she has written a glossary giving rather full definitions of the terms which she uses.

HOW WE RESIST DISEASE, An Introduction to Immunity: By Jean Broadhurst, Ph.D., Assistant Professor of Biology, Teachers College, Columbia University. Cloth. Price, $2.50. Pp. 248, with 138 illustrations and 4 color plates. Philadelphia. J. B. Lippincott Company. 1923.

This text is somewhat more technical and scientific than that of "Home and Community Hygiene," but Miss Broadhurst strives to make plain what is meant by toxins, antitoxins, agglutinins, precipitins, opsonins, lysins, vaccines, and other substances now employed in what may be termed research or investigative hygiene. The book is amply and satisfactorily illustrated. The text is clear and simple and the nonmedical reader, with the use of the glossary and with sufficient interest in the matter, may acquire a fairly clear understanding of its teachings.

STAMMERING, CLEFT PALATE SPEECH LISPING: By Emil-Behnke, Kate. Cloth. Price, $1.25. Pp. 101. Chicago. Chicago Medical Book Company. 1922.

This is a somewhat disconnected discussion of the subjects rather than a closely analyzed scientific treatise. The point of view is not that of a physician, or of a psychologist, but of an intelligent elocutionist who has treated many stammerers. The modern psychologic approach to stammering, which is necessary to complete understanding, is hinted at vaguely, but not actually elucidated. The book contains some valuable information and, on the whole, the deductions are moderate and sane.

ENVIRONMENT AND RESISTANCE IN TUBERCULOSIS: By Allen K. Krause, A.M., M.D., Associate Professor of Medicine, Johns Hopkins University. Cloth. Price, $1.50. Pp. 137. Baltimore. Williams and Wilkins Company. 1923.

The author has presented in a clear and original way the nature of environment and resistance. He has presented these facts in their relation to the nature of the disease tuberculosis, the symptoms, the diagnosis, and the treatment. The chapter on environment is the revision of an address delivered at the general meeting of the North Atlantic Tuberculosis Conference at Richmond, in 1920. Many problems still unsolved are considered in interesting detail in this book. The diseases generally believed to be acquired partly as a result of heredity are not discussed, but the fact is emphasized that a narrow view of the causes of the development of tuberculosis is unscientific and not justified by facts or probabilities. The expression of the author's opinions is straightforward, simple, and concise, carrying conviction and rare effectiveness. This volume should interest all persons connected with the solution of problems of tuberculosis, especially the physician, nurse, public health worker, and social worker, the layman interested in tuberculosis; and, not least, patients suffering from the disease.

RULES FOR RECOVERY FROM TUBERCULOSIS: By Lawarson Brown, M.D. Fourth Edition. Cloth. Price, $1.50. Pp. 202. Philadelphia. Lea and Febiger. 1923.

In this volume are outlined in interesting form certain rules for recovery from tuberculosis, with emphasis on many important details in treatment. It is the author's intention that the book shall be carefully read as a reference handbook, chapter by chapter and day by day. Since the recovery from tuberculosis is largely dependent on attention to detail in treatment, the whys and wherefores of the many rules laid down for patients are made clear. An explanation of certain effects following certain causes is given, and interest stimulated and knowledge imparted to the patient. The author emphasizes the fact that the rules he gives for recovery from tuberculosis must be carried out not only in letter, but also in spirit, that the most important factor is self control.

In this fourth edition a number of changes have been made. The summary has been placed at the end; vitamins are discussed briefly; new weight charts for children added, and new suggestions made in the chapter on foods. "Rules for Recovery from Tuberculosis" should be in the hands of all sufferers from the disease. It is also a useful work of reference for the medical profession in general.

WHEN TO SEND FOR THE DOCTOR AND WHAT TO DO BEFORE THE DOCTOR COMES: By Frieda E. Lippert, M.D., Assistant at the Psychological Clinic, University of Pennsylvania, and Arthur Holmes, Ph.D., Assistant Professor of Psychology and Assistant Director of the Psychological Clinic, University of Pennsylvania. Cloth. Pp. 265, with 16 illustrations. Philadelphia. J. B. Lippincott Company. 1913.

This book gives in plain language the symptoms of simple complaints and endeavors to distinguish the significance of the baby's cry. There is the cry due to hunger, to indigestion, to colic, to earache, to wasting disease, and to rickets, and all of these are to be distinguished from the cry due to the old Adam which exists in all of us and is likely to manifest himself in early childhood. Sore throat may be due to adenoids or simple tonsillitis, or it may be an early expression of the effects of diphtheria or scarlet fever. Even the doctor—and probably he is not consulted—even the expert pediatrician, we say, may be in doubt as to the recognition of measles before eruption. Of course, the expert pedriatrician looks at once for the characteristic enanthem, the characteristic spots on the mucous membrane in the mouth, and relies greatly on this for his early diagnosis. But the mother is not likely to have this expert knowledge, and when her child's eyes are suffused and the temperature is found to be above 99, if she is wise she will keep the child apart from others and send for the doctor, certainly if the child has never had measles. Measles before six years of age often terminates fatally. Measles after nine years of age seldom kills, unless pneumonia develops. We have given the little book a careful reading, and we believe that the anxious mother will profit and be relieved of her anxiety if she reads it and follows its advice.

QUESTIONS AND ANSWERS

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a two-cent stamp. If the question is of general interest, the answer will be published; otherwise it will be sent by mail. The names of correspondents will not be published. Diagnoses in individual cases will not be attempted nor treatment prescribed.

Sun Cure for Tuberculosis

To the Editor:—Please give me information on how to take the sun cure for tuberculosis of the lungs.

E. F. S., New York.

Answer.—The sun treatment, also known as heliotherapy, should not be undertaken except under the supervision of a physician, because, unless it is properly applied, disaster to the patient may result. The sunlight cure should not be attempted in cases of active tuberculosis of the lungs, and it is to be avoided especially after recent hemorrhage and by patients who have suffered from sunstroke. The head is always covered during the treatment. The rays of light must come in direct contact with the body; their curative effect is destroyed if they pass through glass. Should there be increased pulse or temperature which does not subside promptly, the treatment must be given with extreme caution, or even abandoned.

Cause of Eczema

To the Editor:—What is the cause of eczema? Is it inherited and to what extent? Is it curable or is it always apt to reappear? What is the latest or best known treatment for it? Does the taking or eating of yeast help?

M. A. P., Minnesota.

Answer.—Opinions differ as to the cause of eczema. Undoubtedly, errors in diet often aggravate the disease. There appears to be a slight tendency in some cases to the inheritance of a predisposition for eczema, but in the great majority of cases there is no evidence that inheritance has had anything to do with the disease. The treatment of eczema depends entirely upon the portion of the body affected and the general condition of the patient. What is best in each case can only be determined by a competent physician after a thorough examination. There is no evidence that yeast is of any particular value.

"Murine" for the Eyes

To the Editor:—Recently when my eyes were inflamed my hairdresser wanted to drop some solution called Murine into my eyes. Will you please tell me whether this is a harmless remedy?

M. H., Illinois.

Answer.—Your question is interesting because you apparently see nothing incongruous in a hairdresser's prescribing for eye trouble. If you owned a high priced and delicately made watch that was not running just right, would you allow your hairdresser to put some sewing machine oil into the works? Of course you wouldn't. Yet the hairdresser knows a great deal more about the needs of a watch than she does about the treatment of disturbances of the eye. Moreover, the damage that she might do to your watch is negligible compared with what she might do to your eye. The eye is a most delicate and complex organ; when it is affected any drug that may have value in its treatment may also be potent for harm. Any drug that is harmless to a healthy eye is liable to be worthless when used in an eye that needs treatment; also proper treatment is delayed. What is in "Murine" no one but its makers know. It has been analyzed at different times by the chemists of the American Medical Association laboratory and its composition found to vary. The concern that puts it out has made a bluff during late years of telling the public what Murine contains. An examination made last year in the American Medical Association laboratory demonstrated that the claims made for composition were false. Murine is discussed at some length in the pamphlet "Miscellaneous Nostrums," which can be had by sending thirty cents to the American Medical Association.

Milk or Tea and Cucumbers

To the Editor:—Is it a tradition or a fact that it is dangerous to take milk or tea and cucumbers at the same meal? Does lemon juice and salt make an unwholesome combination?

M. E. L., West Virginia.

Answer.—Milk or tea and cucumbers do not necessarily cause discomfort because of their being taken at the same meal, but cucumbers may cause discomfort to many persons irrespective of other food.

Salt and lemon juice, which owes its sharp taste to citric acid, is not an unwholesome combination for a normal stomach if it is taken in moderate amounts and with liquids.

Effect of Removing Thyroid Gland

To the Editor:—Is it true that the complete removal of the thyroid gland will result in mental affection in time unless thyroid extract is taken?

M. E. L., West Virginia.

Answer.—Complete removal of the thyroid gland is, today, a not infrequent operation. When done by a competent surgeon it involves little danger. If there is no reason for removing the entire gland, a portion of it is left, since even a small remnant is capable of preventing trouble. Complete removal of the thyroid gland has, in part, much the same effect on the activities of the body that closing the dampers has on a furnace. Combustion is slowed and less energy is produced; a condition gradually develops in which the heart beats more slowly, the muscles can do less work, and the person becomes drowsy. The mind suffers in a similar manner. Seeing and hearing become less prompt and less accurate; thinking becomes slow and difficult, thoughts are fewer; actions cease to be prompt, but are slow, clumsy, and inefficient. This condition is known as myxedema when it occurs in grown persons, and as cretinism when the thyroid gland has been absent from birth. Cretins not only do not grow properly, but also are feebleminded. Both conditions can be relieved by the proper administration of extract of the thyroid glands, but since this is not a harmless substance it should be taken only under the direction and supervision of a physician.

For Fat Folks

To the Editor:—Are there any harmless drugs that can be taken to reduce, either with or without dieting?

M. C., Illinois.

Answer.—No. The preparations sold for the alleged cure of obesity may be roughly divided into two groups: those that contain thyroid extract and are dangerous and those that do not and are worthless.

Both kinds are discussed in the pamphlet "Obesity Cures," which may be had by sending fifteen cents to the American Medical Association.

Nujol—Sextonique

To the Editor:—1. Is Nujol good as a waste exterminator or is it another fake? Is its relief permanent? 2. Sextonique and Sextonique Tablets put up and "guaranteed" by the Cumberland Chemical Company, Nashville, Tennessee—are they dangerous? C. E. P., Arkansas.

Answer.—1. Nujol is not a fake. It is a special brand of liquid petrolatum (mineral oil, "Russian oil"). The action of liquid petrolatum was described in this department of HYGEIA for August. It produces elimination mainly by mechanical action, as Nujol is not absorbed by the system. Its action may also be due in part to coating of the food particles with a non-absorbable material.

2. We do not know the composition of "Sextonique" or "Sextonique Tablets." We have on file a great deal of the advertising paraphernalia put out by the Cumberland Chemical Company in exploiting its "Sextonique." It is crude and indecent quackery of a type common to the "weak men cure" fakers. The whole trend of the advertising is to cause sexual neurasthenics, the class appealed to by these charlatans, further to brood over their ailments, real or imaginary, and to keep their minds on their sexual apparatus and thus frighten them into purchasing the nostrums. Keep away from these fakers.

Removal of Hair by Electrolysis

To the Editor:—For the last five years there has been a noticeable growth of hair on my face. In my case electrolysis has been of little use. Kindly give me information or references to literature about the control of hair growth by glands. What remedies, such as medicine, are there? Are operations successful? J. W., Illinois.

Answer.—There is no treatment by glands, or their products, that has proved of any use to prevent or decrease the growth of hair; nor are there any other medicines that are of any benefit for this purpose. The only practical way of removing hairs is destroying the hair follicles one at a time by electrolysis. If there are many hairs this treatment, even by a skillful operator at intervals for many months, is only reasonably successful. There is not any successful operation for the removal of hairs.

Edwin F. Bowers

To the Editor:—Would like to know if you can give me any information regarding Dr. Edwin F. Bowers. I enclose article which I clipped from *Physical Culture.* S. K., Illinois.

Answer.—Edwin F. Bowers, although he puts "M.D." after his name, is, so far as our records show, not an M.D. A careful search of all official data available fails to show that Edwin F. Bowers was ever graduated by a reputable medical school or was ever licensed to practice medicine anywhere in the United States. Some time ago Bowers sponsored an article in *Physical Culture* promulgating the dangerous doctrine that syphilis could be cured by a milk diet. Also in the same publication Bowers wrote an article under his own name giving the impression that locomotor ataxia also could be cured by a milk diet. After these articles appeared, the Attorney-General of the State of New York instituted an investigation to get such facts as were available regarding the professional training of Bowers. In November, 1922, the Attorney-General of the State of New York wrote: "He [Edwin F. Bowers] admitted that he was not a graduate in medicine and further admitted he had never attended any medical college in the capacity of a student of medicine." People who wrote to Bowers after reading his article on the cure of locomotor ataxia, were directed by Bowers to a "patent medicine" called "Bioplasm," which he described as "a treatment for ataxia and kindred troubles." He enclosed an advertising booklet on "Bioplasm." More than sixteen years ago the *Journal of the American Medical Association* exposed Bioplasm for the humbug that it was. At that time the president of the Bioplasm Company was Edwin F. Bowers. These facts should be kept in mind when one attempts to evaluate the probable scientific value of testimonials or pseudo-scientific articles on medical subjects appearing under the name "Edwin F. Bowers, M.D."

The Undersized Adult

To the Editor:—Can anything be done to promote the growth of an undersized adult? J. A., Illinois.

Answer.—Nothing can be done to promote the growth of an undersized adult. Under normal conditions the long bones grow in length by the addition at both ends of bony material along the lines of cartilage between the so-called shaft—the long portion—and the rounded end of the bone. Cartilage undergoes complete change to bone about the twenty-first year, after which growth is no longer possible. Under certain abnormal conditions the change of this cartilage into bone does not occur at the usual age period; growth therefore continues, and gigantism results, that is, the person affected grows to giant size.

Western Medical Association

To the Editor:—I have at hand an advertisement of the Western Medical Association of Chicago. I have been advised by my doctor to write you for information as to whether the statements made by this concern are reliable. M. C., Ohio.

Answer.—The Western Medical Association is the high-sounding name adopted by a medical mail-order concern that sells an alleged remedy for epilepsy. Part of the stock in trade of the advertising paraphernalia is a testimonial letter from a physician, which is reproduced by the Western Medical Association as an "unsolicited letter" which "we treasure very highly." Investigation showed that the physician is one of the owners, if not the chief owner, of this concern. An analysis of the preparations put out by the Western Medical Association made by the American Medical Association Chemical Laboratory disclosed the fact that the "treatment" consists essentially of phenobarbital (luminal) and a laxative.

Treatment of Hay Fever

To the Editor:—For twenty years I have been a sufferer from hay fever. Would you recommend the use of serums as a preventive? A. B. S., Texas.

Answer.—The use of pollen extract (not serum) is recommended for the treatment of hay fever, provided the patient is first tested out by an expert in this line to determine the pollen to which he is sensitive. The treatment should be begun about three months before the hay fever usually starts, and should continue during the hay fever season. A series of articles on the causes and treatment of hay fever appeared in HYGEIA for May, June, and August.

HEALTH REVIEWS

HEALTH IN THE CURRENT MAGAZINES

WOMAN'S HOME COMPANION

The *Woman's Home Companion* for August contains an admirable discussion, "A Glimpse into Child Psychology," by Dr. Josephine Jackson, who has studied to some purpose the shortcomings of many parents in the matter of raising children. "You need to know," says Dr. Jackson, "that the odds are all on the child in his likelihood of coming up well, no matter how poorly you manage the job; in other words, you need to know that nature has left the matter very little to chance, and only in minor details." The truth of this statement is illustrated by the fact that the parents themselves have grown to broadminded, strong and useful manhood and womanhood, although their own childhood was marked by the same faulty tendencies that they observe in their children.

"On the other hand, there is a very definite, however narrow, margin of difference between the equipment for life of a well trained child and that of a poorly trained child, and it is for this precious margin that we make our plea."

Attention is called to the importance of giving nature a free hand in developing a sturdy, physical machine through the agency of proper food, rest and play, sleep, fresh air, and clothes that protect instead of hamper.

The acquisition of right habits is strongly emphasized and the pernicious physical result of bad habits is illustrated by the effect of thumb sucking on the delicate muscles of lips and cheeks and on the growing teeth and jaw bones.

"Nature's tendency is almost wholly in the direction of right habits," says the author. A child likes fair play, it is instinctive in him; he is full of energy; he has the acquisitive faculty; he mimics early and perfectly, he is social, liking companionship. "When he is older he knows how to fall in love—a very good and necessary habit."

There are two chances for bad habits to gain a hold in the developing child, first, some of his native impulses are weaker than others, and so may be crowded out by the growth of the stronger ones, and, second, the influence of environment may interfere with the normal balance of the instincts and he may be unfitted for life by the mistaken kindness of his parents, or by the untoward effect of their example.

The normal health of the child is discussed, and the fact emphasized that there is a psychic side to the hygiene of sleep, digestion, and circulation quite as important as the physical side.

Bedtime, with its quiet moments of communion with the loving mother and the bedtime story; meal time, stressing the importance of a wide range of foods, each bearing its proper contribution to the building of a strong, efficient body and mind; the potent influence of example—"example outweighs precept"—these items are discussed sanely and impressively.

The article closes with some sound advice as to the importance of early, careful instruction of the child by the parents concerning sex with the plea, "Let us live intimately with our children, remembering past days. So we shall be at hand to guide their feet in the right direction at each turn of the road. To be sure they would find their way eventually, for the right instincts are within them; but with true understanding one may spare them many an hour of anguish and many a disfiguring scar."

In "Good Looks—How to do it—in Ffteen Minutes a Day," the care of the hands, the face, and the hair are described, and the intimate relation of intestinal disorders, resulting from errors of diet and from other causes, is discussed. A prize is offered in this column, for the best essay on "How You Spend Your Beauty-Time."

"Easy-to-get Meals, by Alice Bradley, presents a group of menus for home use, especially during the summer.

MCCALL'S

In *McCall's* magazine for August, Dr. Charles Gilmore Kerley discusses the nervous child. Dr. Kerley says that "children whose adult associates are sedate, quiet, loving people are very apt to be considered nervous. The child's activities, such as running, aimless jumping, slamming doors, turning hand springs, sliding down bannisters and his inability to sit still at the meal hour, are interpreted as nervousness. What such children need is a proper direction of their activities."

Too much association with elderly people is not desirable. An elderly nurse maid, who may be ideal for the care of a baby or very young child, is often unsuited for the care of an active, vigorous boy or girl of the age of three, four, or more. Children must be active; they must play; they seek knowledge; they ask questions, and with properly directed activities, may be taught almost anything. The proper training is not suppression of their tendency to activity, but a proper direction of their abundant energy. A billy goat, warranted not too gentle, a pony, a donkey, a bulldog, a bright young college student, a patch of ground for a garden—such are the prescriptions that Dr. Kerley advises, with a proper scheme of life relating to food, rest, and sleep. These are advised instead of tonics or other medicines, which parents so often expect the physician to order. Supplying right companionship is one of our most important functions in dealing with children.

DELINEATOR

In the *Delineator* for August, Fielding H. Yost, for many year's director of physical education and athletics at the University of Michigan and widely known for his success as a coach of football teams, expresses his conviction that the mental attitude of the football players, as well as of persons in other activities of life, is a most important factor in attaining success.

"I take it for granted," he writes, "that if I live a proper life, work and overlook no opportunities to add to my facilities, I will be healthy and happy. When I am well I do not expect to be ill, and I seldom am. When I am ill, I expect to get well; I seek the advice of a good doctor and follow it and I get well. Of course, there are accidents beyond our control, but they are nothing to worry about—one of the best ways to avoid accidents is to observe the ordinary rules of caution.

"Fear is a great killer—not only of body, but of the joy that health and success will always bring. 'Fight 'em, fight 'em, fight 'em! We're going to win!' is the slogan which has carried many a man and many a team to success."

Mr. Yost alludes to the hypochondriac who imagines himself the victim of all sorts of ills, and gives an example of a professional baseball pitcher who made himself believe that he had everything from fallen arches to leprosy and once became convinced that he had tuberculosis because he lacked energy and tired easily, a condition that was readily explained by his habits at the time.

"The Happy Child," a lesson in feeding children and how not to do it, is discussed by Dr. L. Emett Holt. Dr. Holt begins his interesting article by describing the case of Mary, almost six years old, who would not eat the food that the doctor had ordered for her. She had not been weaned from the bottle until she was past the age of three and had not been taught to feed herself "because she was so slow—would play with her food until it was stone cold and so," her mother said, "I simply had to help her, and now she will not eat at all unless I feed her."

Mary was an only child and her mother had no previous experience to guide her. Her first mistake, says Dr. Holt, was in allowing her to have the bottle until she was three years old. She should have been made to drink milk from a cup not later than the end of the first year. The second mistake was in not compelling her to feed herself. Regularity in habits and early training are important for every child, but more necessary for delicate than for robust children. The problem of self-feeding is solved by applying the rules of child psychology, never by constantly changing the diet and not by the giving of medicine to create an appetite.

Remarkable creatures of habit, these little folks are, and it is in most cases quite as easy to form good habits as bad ones if one begins early, but one must be regular, firm, and always consistent.

Dr. Holt advises this plan for feeding the child who does not want to eat regularly: Food properly prepared and presented in as attractive a form as possible should be put before the child, but not a word said; at the end of twenty minutes it should be removed, again without a word of remonstrance no matter if not a mouthful has been touched. It is often well to leave the child quite alone in the room during this time. Food is not offered again until the next meal time, when the procedure is repeated. It may take from two to five days before the child will eat willingly, but usually there will be no difficulty after that. During this period of refusal to eat, one precaution is necessary—to reduce activity—often voluntarily done by the child. Puny children should be kept in bed. Often it is the parents rather than the child who most need treatment.

In "Health via the Kitchen," Mary Hamilton Talbott discusses the methods of guarding against bacteria in hot weather. Often food delivered to the home in the best of condition is spoiled by improper handling in the kitchen. Food should be kept dry and cool, protected from flies and other insects.

Meats should be freed from excessive fat and steaks and chops stripped of their thin membranes. In extremely hot weather brushing meat with oil and vinegar—half and half—is an added precaution.

Milk should never be allowed to stand outside the refrigerator for any length of time, nor left uncovered, nor should fresh milk be mixed with that left over from the previous day.

Advice is also given as to the handling of bread, vegetables, berries, cheese, and eggs.

It is a common mistake to put a small piece of ice in the refrigerator and wrap it up in flannel or paper. The purpose of the refrigerator is to preserve the food—not the ice.

The placing of the refrigerator is important. Cleanliness is one of the first requisites of any storage place.

OPEN AIR SCHOOLS

The open air schoolroom has abundantly established its claim to usefulness. Further testimony to its advantages comes from Detroit. The following extract is taken from the *Weekly Health Review* of the Department of Health of Detroit.

Schoolrooms Where Colds Are Not

"The other day a teacher in an open air schoolroom said: 'I have not had a cold this winter. I did not have a cold last winter. The pupils are remarkably free from colds. I have gained five pounds since teaching in the open air rooms. Before I taught in this type of room I had colds all winter long.'

"There are six open air schools in the city, the Russell, Stephens, Clippert, Marr, Maybee and Franklin. The temperature of these rooms varies from 55 to 60 degrees. The occupants wear heavy clothing, although some after a time get so used to their surroundings that they do not wear other than ordinary clothes. In the autumn they gradually become accustomed to the cold air. The skin responds to the stimulating action of the cold. The membranes of the nose and throat are less subject to congestion and infection. The body becomes toughened to meet daily fluctuations in the weather, and resistance to the common respiratory ailments is maintained at a high level.

"The pupils in these rooms include tuberculous children who are not infectious, children exposed to tuberculosis in the home, the severely malnourished and anemic, and a few with ailments of the heart. They have a special schedule including periods for sleep and rest and lunches. The total enrollment since July 1 is 621. March 1 the enrollment was 416. Since July 1, 225 children have been discharged from the classes, 140 being so far improved in health as to return to the regular classroom. Six have been sent to a sanatorium for more intensive care, and seventy-nine have been discharged for other reasons. The average attendance since July 1 has been better than 91 per cent.

"In the matter of weight changes during February, 55 per cent. exceeded the average expected gain, 7 per cent. equalled average gain, 10 per cent. gained, but less than the average, 10 per cent. remained stationary in weight, and 17 per cent. lost weight. Placing these children on their feet now will mean less dependence on sanatorium care later in life."

Just what are the factors which make the warm, still air in the school room depressing is not yet fully understood. It is not lack of oxygen, excess of carbonic acid, nor the presence of any special organic substances that can be isolated. Nothing is more certain, however, than that dry, cold, moving air is stimulating and invigorating while warm, moist, still air is not. One of the most striking illustrations of this fact is the behavior of school children in an open air school during the winter months as contrasted with that of children in the usual poorly ventilated school room.

The open air school has made it possible for children who are below par from any cause to continue their school work. If the use of this type of schoolroom could be made general, we should be rearing a generation of young people accustomed to temperatures much lower than those now maintained in our homes, schools, and elsewhere, and therefore much better fortified against the dangers of "catching cold" and of many of the infections of the respiratory tract.

Oh! Very Well

Ain't It a Fact!

Pride goeth before an alibi.

The hotter a man gets under the collar the higher the blood pressure.

The way to a man's heart is by good food, through a clean life and plenty of exercise.

Breathes there a man
With soul so dead,
Who never to his friends hath said,
When the weather was hot
And his clothes sweated through,
"Say, boy, is it hot enough for you?"

WHY FATHER CHOKED ON THE SOUP

The family was at dinner. It was just after Mary's return from the summer camp and naturally she was the cynosure of all eyes, as any young lady of sixteen summers is likely to be.

"And how did you enjoy yourself?" asked Uncle Tom.

"Just fine," said Mary, "except that at one time the superintendent thought I had appendicitis."

"And did they cut out your athletics?" asked mother.

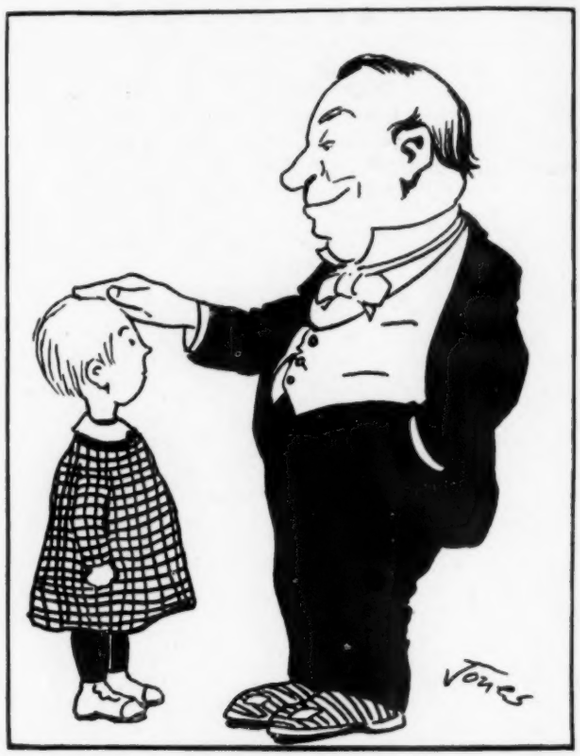
T. S. C.

+ M. F.

"FEAR NOT, THE COMFORTER WILL COME"

Daddy.—"Well, my boy, what was the Sunday School lesson this morning?"

Tommy.—"The teacher said: 'Don't get scared you'll get your quilt.'"



+ M. F. SIMPLE SUSIE

Susie.—"I'd hate to be a hen!"

Papa.—"Why, dear?"

Susie.—"'Cause then I'd have to lay eggs, and I don't know how."

THE ROMANCE OF SCIENCE

Long and searchingly he gazed deep into her eyes, those so-called windows of the soul, which held for him nothing but mystery. Would he never know the truth—he must, that's all. His honor depended upon it; it was now or never. If he let her go now she would never come back. Seizing her face firmly between his long slender hands he commanded her to look at him in a voice more stern than he had ever believed himself capable. She whimpered. Instantly repenting, he asked her pardon. "You should not fear me," he whispered. For some minutes he held her thus and then relaxing he shook his head as he walked slowly away. At the other side of the room he turned, and on his face a smile and a note of triumph in his voice.

"Madam, it is just as I thought, you have astigmatism," he said.—*Washington and Jefferson Wag Jag.*

THE GOLFER

Mr. Stymie—Whoever heard of a course with more than eighteen holes?

Mr. Dubbe—Wait till they serve the Swiss cheese course and then count 'em yourself.

September

Now cometh September! The football player goeth forth, and returneth full of bumps and gore; the golfer gazeth at the sun, his wife returneth from the shore: the day grows short, which maketh the light company sore; and thus we end, for we can say no more.

(Continued on adv. page 8)

Proved Medicines

THOSE who have visited our laboratories have had ocular demonstration of the elaborate system employed to insure that all products issued by us shall be worthy of bearing the insignia shown above—Medicamenta Vera.

The records pertaining to each product tell the source of each ingredient, when it was bought, and what member of the analytical staff examined it when it was taken into stock; then they tell who calculated the quantities, and who confirmed the calculation; who weighed or measured the material and who checked that weighing.

At each stage of the process the records show the identity of each assistant concerned and also the name of the person certifying the work. The records also bear the signature of the head chemist, who is finally responsible for "passing" the preparation.

It will be readily realized that the main object of all this complicated system is not so much to trace errors as to make them, humanly speaking, impossible. Human nature being what it is, the knowledge that all work has to be checked, and signed for, does more than anything else to encourage accuracy. Our laboratories have devised methods that practically insure that the mark MEDICAMENTA VERA—Proved Medicines—shall be a symbol of therapeutic and pharmaceutical dependability, that the product that bears that mark shall be worthy of the house of Parke, Davis & Co. and, so far as human effort and care can make it, perfect in every respect.

The reputation of your physician is largely in the hands of those who prepare the medicines he prescribes.

The doctor devotes years of study to acquire the knowledge and experience necessary to diagnose and treat disease. His skill at diagnosis, however, would be of no avail did he not have trustworthy drugs and serums and vaccines to carry out his high purpose of disease prevention and disease alleviation and cure.

That is why physicians, jealously guarding their patients' interests and indirectly their own reputations, demand standardized medicines. And standardized medicines are "proved medicines"—medicines that have been put to every test that medical sciences can devise to insure safety, activity, and uniformity—medicines, in short, "that have been weighed in the balance and found *not* wanting."

To us, who conceived the idea of standardization of medicines, it has been a source of pride and gratification to watch the growth and widespread approval of that idea.

PARKE, DAVIS & COMPANY
DETROIT, MICHIGAN

THE FOOD-DRINK FOR ALL AGES

Endorsed by health authorities

The Original Malted Milk

(*Avoid imitations*)

A nutritious table drink,

especially for growing children and those who are subject to nervous, anaemic and digestive disorders.

Refreshes and invigorates

whenever tired or hungry. Drink "Horlick's" at home, office or fountain. Used by athletes and physical culturists.

For infants and in the sick room

Very reliable in the prescribed feeding of nursing mothers, and during illness.

Literature on its home uses and advantages, together with sample, prepaid on request

HORLICK'S

Racine, Wis.

The Journal of

Home Economics

devoted to

The Art of Right Living
The Science of Right Living

in

the Home
the Institution
the Community

Every homemaker, dietitian, nurse, and social worker should read this Journal.

Subscription, $2.50 a year. Send for sample copy

Published monthly by

American Home Economics Association
1211 Cathedral St., Baltimore, Md.

OH! VERY WELL!

(Continued from page 406)

FROM THE DOCTOR'S RECORDS

Doctor.—Of what did your father die?

Patient.—They said calvary mortis.

Doctor.—And your mother?

Patient.—Oh! nuthin' serious.

Doctor.—Well. What did the doctor call it?

Patient.—He said it was brides disease, but she was an old woman and a widder. F. J. V.

THE EVIL OF SMOKING

Passenger—I say, driver, what is the average life of a locomotive?

Driver—Oh, about thirty years, sir.

"I should think such a tough-looking thing would last longer than that."

"Well, perhaps it would sir, if it didn't smoke so much."—*Southern California Wampus*

KEEPING IT QUIET

An Irish laborer had been warned to be careful of a quarry pit in the neighborhood. His foreman saw him suddenly stagger and disappear over the crest of the opening.

At once he ran to the edge. "Are you dead, Padraic?"

"Sure, an' I'm kilt entirely."

"Man, you don't sound dead."

"Well, if I'm not dead, I'm knocked spacheless."

WHY DOCTORS GO MAD

Insurance Doctor—Were you ever in the hospital?

"Yes, once."

"What for?"

"To see my aunt."—*Judge.*

A MISUNDERSTANDING

Irate Motorist: "Say, this darned car won't climb a hill! You said it was a fine machine!"

Dealer: "I said: 'On the level it's a good car.'"—*Science and Invention.*

WEST SOAPARATUS

A Gravity Liquid Soap Dispensing System

With other improvements, time has brought about a change from the old way of washing—a West development for dispensing liquid soap in a clean, satisfying manner

The Finishing Touch to the up-to-date Washroom

One central tank supplies each washbowl fitted with our mechanically perfect Soaparatus valve. One push of the plunger releases a measured amount of the soap into the palm of the hand. West soap is bound to satisfy and West appliances will keep you satisfied. Write nearest branch.

WEST DISINFECTING COMPANY
411 Fifth Av., New York City
2637-45 Cottage Grove Av., Chicago

WEST DISINFECTING CO.
Branches All Over the World

The Sign of Efficiency and Protection

THE EVERGREENS SANATORIUM-SCHOOL FOR CHILDREN

Medical Treatment, Education, Speech Correction, Physical Training in the Environment of a Private Home under the Personal Supervision of

Wm. Burgess Cornell, M.D., Resident Director
51 Menand Road, Albany, N. Y.

JUST'S FOOD
A MALTOSE-DEXTRIN PRODUCT

Made from cereals only. Used with fresh cows' milk in Infant Feeding. Beneficial for Invalids, Convalescents, Aged and those suffering from Digestive Disturbances.

Samples and literature on request.

JUSTFOOD COMPANY, SYRACUSE, N. Y.